

GEOGRAPHY

Paper 9696/11
Core Geography

Key Messages

- The syllabus states that learners study case studies for particular areas of human geography, but it was apparent that a considerable number had only theoretical understanding and no case study or studies to back it up.
- It is recommended that equal time is devoted to the teaching of each of the six units. A lack of choice in Section A caused problems for a number of candidates

General comments

This examination produced a very wide range in the quality of responses. Some candidates and Centres produced work of an impressively high standard. Most candidates have come to terms with the demands of the data response questions in **Section A**. They usually demonstrated skills in assessing and describing data sets. Relatively few candidates failed to describe the data when required to do so. There remained however a minority who continue to provide explanation rather than description. Data sets such as population statistics, graphs and hydrographs were usually correctly understood and described. Candidates were less successful in describing spatial patterns on maps or diagrams. Describing a pattern requires more than merely a repetition of all the data.

As has been evident in the past there appears to be very unequal attention paid by the candidates to the preparation of different parts of the syllabus. In physical geography, candidates appeared far more knowledgeable and confident in dealing with fluvial geomorphology than they did with climate and weather or rocks and weathering. In human geography greater confidence was shown in population, and to some extent migration, than in dealing with settlement dynamics.

It is the use of exemplification and case studies that often distinguishes the best candidates from the rest. There were examples of some impressive accounts of migration and the impact of food shortages on many Centres in Zimbabwe, where candidates were clearly drawing upon personal observation. The best of these were those that were able to combine together the framework of migration in theory with actual examples. In parts of the human geography syllabus, case studies are required, such as in 1.4, the management of natural increase; 2.4, international migration and 3.4, the management of urban settlements. There were a number of Centres and candidates who attempted to answer questions from these syllabus areas who clearly had not prepared a suitable case study. Although case studies are not a syllabus requirement in physical geography, exemplification and case studies are a great advantage to candidates answering questions on the human impact parts of the syllabus.

Rubric errors remain infrequent and are usually restricted to candidates who waste time attempting to answer too many questions. Handwriting was generally legible and the standard of English usage impressively high. The paper was completed by most candidates and time management did not seem to be an issue.

Comments on specific questions.

Question 1

- (a) (b) The basic components of a storm hydrograph are well known and many candidates obtained all four marks in (a) and (b). The most common errors were the calculation of lag time from the beginning of, rather than the peak of rainfall and an inability to identify baseflow,
- (c) Most answers successfully related clay soils and steep slopes to increased run off leading to high peak discharge. Better answers explained this in terms of infiltration, limited baseflow and shorter

lag time with steep rising and recession limbs. Rounded basin shapes were seen to influence lag times and peak discharge by the synchronicity of water arriving at the gauging station.

Question 2

This was the least popular question in **Section A** and often poorly answered.

- (a) (b) Very few candidates successfully identified equatorial low pressure, subtropical high pressure, trade winds and westerlies.
- (c) The better responses were those that related pressure systems to the differential heating of the earth's surface. Thus, intense solar radiation in equatorial areas leads to rising air and low pressure whilst upper air convergence produces descending air in the subtropical high pressure areas. Surface winds blow from high to low pressure areas producing trade winds, westerlies and the outblowing polar winds.

Question 3

- (a) Strong chemical weathering was almost universally identified, but in (ii) most candidates did not identify a weathering **process** e.g. frost shattering.
- (b) The crucial feature, aridity, was commonly identified although many did not notice a wide range of temperatures. Better answers explained how the lack of precipitation limited chemical processes and mechanical processes such as freeze thaw.
- (c) The importance of higher temperatures and humidity was understood, but many were less successful in describing their impact upon a particular chemical weathering process. Better answers demonstrated the importance of temperature and precipitation to the operation of carbonation or hydrolysis. There were in addition some excellent responses that used chelation although those selecting hydration were less successful.

Question 4

- (a) (b) Most candidates gained nearly all of the marks by correctly identifying the countries in (a) and giving an accurate description of the data sets in (b).
- (c) This proved to be more demanding than (a) and (b). Many responses did not take account of the **demographic** consequences of predicted population change in Africa. They merely described possible outcomes in terms of famine and pestilence. Better answers put Africa's predicted population growth into the context of the middle parts of demographic transition. Thus actual increase was generated by the slower decline of birth rates compared with those of death rates. The consequences of this natural increase would be dependent upon the extent to which the resource base was stretched and could result in an arresting or reversing of death rate decline.

Question 5

- (a) In order to be successful the description needed to be structured rather than a simple listing of the size of refugee flows in each country. Better answers realised that refugees seeking asylum stemmed from areas of political instability as well as natural and human induced disasters.
- (b) The better answers were those that concentrated on the impact of refugees rather than migrants in general. Refugees often arrive without funds and with few possessions which can cause considerable problems for receiving countries. Refugees often have to be supported through international aid. Many responses described only negative impacts with no acknowledgement of any positive aspects of refugee migration.

Question 6

- (a) Virtually all candidates identified the correct five year period although some marks were lost in (ii) by an inability to **compare** the population changes by citing data from Fig. 5.
- (b) The better answers successfully associated the population changes in the two villages with some insight into the nature of rural settlements in LEDCs. Thus a steady population decline as in village

Y could be due to the loss of the young, fertile age group to rural – urban migration. This would leave an aging and declining population. The changes occurring in village X could be due to an arresting of the causes of decline (migration, disaster etc.) and the retention of an increase of fertile age groups, though there were other acceptable explanations. Weaker answers saw decline as only due to natural disasters.

Section B

Question 7

- (a) Hydraulic action and solution were often adequately defined but in (ii) marks were lost by candidates not linking discharge changes to the nature of a braided channel with its eyots and divided water courses.
- (b) Whilst most responses described the nature of pools and riffles within a channel, far fewer could explain their role in bringing about meandering. Better answers related pools and riffles to the swinging of the channel flow and the development of helicoidal flow across the channel.
- (c) Understanding of the Hjulstrom curve has much improved in recent examinations and many responses drew a reasonably accurate diagrammatic representation of it. The better answers related velocity and sediment size in the entrainment, transport and deposition of different types and sizes of sediment. Thus distinction was made between the velocities required for entrainment of clay (cohesive) and sand. Deposition was related to the competence of the river meaning that lighter sediments could be transported much further than heavier cobble materials.

Question 8

- (a) There remains considerable confusion over both the characteristics and formation of fog and dew. Both are water droplets caused by the cooling to condensation of water vapour close to or at the earth's surface. Better answers recognise either radiation or advection fog but often omitted the vital element of cooling.
- (b) Diagrams of the day and night "models" of energy budgets were much improved compared with many drawn in the past. There remains some confusion over the character of incoming short wave radiation and long wave terrestrial radiation. Also, many were unclear concerning the role of water vapour and other greenhouse gasses in atmospheric warming.
- (c) Although the question reversed the distinction between rural and urban climates, this was widely ignored. Better answers did attempt to describe and explain the extent to which rural climates differed from those in urban areas. Emphasis was still placed on urban heat islands and their concomitant impact upon precipitation but this was set within the context of a contrast with rural conditions.

Question 9

- (a) Mass movement is an area of the syllabus that continues to prove difficult for many candidates. This was evident in many attempts to define the processes of flow and slide as well as in the impact of rock slides upon slopes. Most recorded the significance of water in the operation of flows, but not the internal mixing of often incoherent materials. Slides could be seen as a movement of coherent materials along a slide plane where stress overcomes strength.
- (b) Most responses produced reasonable diagrams of convergent plates showing subduction zones at the meeting of an oceanic and continental plate. This produced difficulties for the illustration of island arcs, which were not well understood. Oceanic trenches were generally better described and explained.
- (c) Human activities that could bring about slope instability formed the greater part of most accounts. Thus, construction, quarrying, mining, road building and deforestation were often described at length but with little explanation as to the processes that produce mass movements. Better answers were those that explained processes, gave exemplification and produced some balance between the human activities that led to both increases and decreases in mass movements.

Section C

Question 10

- (a) Most candidates described a range of circumstances that could lead to food shortages. Many accounts lacked balance as they concentrated solely on those factors that can affect food supplies whereas better answers produced a balanced account of both the supply and demand.
- (b) There were some excellent responses particularly from some Centres in Zimbabwe who effectively utilised examples to illustrate the impact of food shortages. These accounts went far beyond the more obvious famine starvation and migration to emphasise both economic and social consequences.
- (c) Nearly all responses recognised that there is a strong association between the raising of education levels of women and lower fertility rates. In some accounts this was limited to the diffusion of knowledge about contraception and sanitation. Better answers explained the relationship between general levels of educational attainment of both sexes and fertility rates. They also tempered this by consideration of other factors that could impact on fertility such as population structures, cultural attributes and government population policy.

Question 11

- (a) (i) Internal migration was generally well defined though many missed a mark by not mentioning that migration has to occur for one year or more.
- (ii) Apart from those that misread the question as rural-urban migration, most gave a full explanation of urban-rural migration in LEDCs.
- (b) Better responses were those that integrated the theory of constraints and barriers such as cost, transport, cultural and governmental obstacles within apposite examples. Many did not answer the question and wrote about the general factors (push/pull) that can affect internal migration. The terms constraints, obstacles and barriers are taken directly from the syllabus and so should have been familiar to candidates.
- (c) Better answers saw both push and pull factors as different sides of the same coin. That is such things as a lack of opportunity pushing people to migrate whilst perceived opportunities elsewhere acted as a powerful pull. The range of perceived pull factors and their impact upon voluntary migration was often demonstrated by the employment of good examples or case studies. In this manner, some assessment could be made of the relative strengths of push and pull factors. Surprisingly, many candidates found great difficulty in describing push/pull factors. Many saw push factors as only applying to forced migration which of course was not the subject of this question.

Question 12

This was the least popular question of **Section C**.

- (a) (i) A large number of definitions made no reference to increases in the proportion of a population living in urban areas, but rather described urbanisation only as the growth of the urban fabric.
- (ii) Most recognise the role of rural-urban migration in the rapid growth of some LEDC cities, but very few also identified the impact of high levels of natural population increase.
- (b) Slow rates of growth in MEDC cities were frequently explained by the attraction of rural areas for city dwellers and to those of retirement age. Better answers were those that identified the already existing high levels of urban occupation, (often or around 80% of the population) and the low rates of natural increase. These demographic characteristics were coupled with the process of counter urbanisation and government policies aimed at constricting further urban growth.
- (c) Many answers mixed together examples drawn from both LEDCs and MEDCs rather than just the one that was required. Many answers also interpreted the question as concerning attempts at stopping or restricting urban growth and thus limited their description to such things as rural growth poles or green belt policies. Good answers also covered attempts at solving the problems of cities in LEDCs that already had large populations living in poor housing and associated social and

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GEOGRAPHY

Paper 9696/12
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This examination produced a very wide range in the quality of responses. Some candidates and Centres produced work of an impressively high standard. Most candidates have come to terms with the demands of the data response questions in **Section A**. They usually demonstrated skills in assessing and describing data sets. Relatively few candidates failed to describe the data when required to do so. There remained however a minority who continue to provide explanation rather than description. Data sets such as population statistics, graphs and hydrographs were usually correctly understood and described. Candidates were less successful in describing spatial patterns on maps or diagrams. Describing a pattern requires more than merely a repetition of all the data.

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GEOGRAPHY

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Key Messages

- The syllabus states that learners study case studies for particular areas of human geography, but it was apparent that a considerable number had only theoretical understanding and no case study or studies to back it up.
- Candidates need to know what to do when asked to describe a trend or pattern based on a resource. These both require some generalisation about change and spatial location respectively.

General comments

There was a wide range in the quality of the responses. Weaker candidates were able to gain reasonable marks and the better candidates were able to demonstrate their higher abilities. The Physical Geography questions still cause many candidates problems and it was usually a physical geography question that was omitted from **Section A**. There are still many examples of imprecise use of physical geography technical terms and sometimes an inability to relate the correct process to a landform being discussed. In previous reports, it has often been noted that mass movement and landsliding concepts cause many issues. There were encouraging signs in this examination of an improvement in the understanding of such landforms and processes. The understanding of the nature of soil creep was a case in point.

Many of the answers, especially to the human geography questions, were impressive with accurate use of relevant and often unusual geographical examples. There is still an issue of the choice of examples to use. Many candidates, for whatever reason, thought it more appropriate to use, say British examples with which they were less familiar, rather than more appropriate local examples. Occasionally enthusiasm caused some candidates to wander off the focus of the question. They possessed knowledge and were going to reproduce it whether it was relevant or not. Some candidates appeared not to have studied any case studies although the human geography syllabus requires them to do so.

As noted in previous reports, some candidates still do not seem to understand command words such as 'trend', 'pattern', 'relationships' and many more. Many candidates still explain when the command word is 'describe'. However the incidence of this misinterpretation seems to be decreasing and hopefully, this trend will continue.

Data support continues to be lacking in answers involving the visual resources in **Section A**. The report for the June 2011 examination noted an improvement in candidates' evaluative skills. This improvement was evident in this examination too and is an encouraging sign.

Overall the paper was completed by most candidates and time management did not seem to be an issue. However, there is still a minority of candidates who answer all the questions in **Section A**.

Comments on specific questions

Section A

Question 1

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

- (a) (b)** The majority of candidates got at least one part correct, usually **(a)**. Some identified the wrong particle size from the curves and a sizeable majority ignored the need for a specific particle size in millimetres and produced a range of values.

- (c) The majority interpreted the question, quite correctly, as being related to the Hjulstrom Curve. However, the question asked for explanation and a significant number of candidates simply described the relationships shown on the curve, though a sizeable number of candidates were able to explain why clay material needs a higher velocity for erosion to occur. A small minority described the various processes of erosion, such as corrosion, hydraulic action, solution and attrition. If they then related these processes to different types of material they were given credit for this, even though it was not the most obvious interpretation. But there had to be some reference to types of material to gain marks.
- (d) Most candidates found this part of the question difficult. There was little understanding of the variation of flow and velocity along a river channel that was needed to underpin the answer. Many gained some credit in stating that deposition took place where there was a loss of energy either in an upstream/downstream manner or across a channel especially in meanders and on riffles. Deposition at deltas and alluvial fans was also a popular interpretation. Weaker answers showed little understanding of velocity distribution along river courses. Many still believe that mean river velocity is higher in upstream areas whereas velocity generally increases in a downstream direction. Better candidates did discuss turbulence in the upper courses and the fact that deposition could occur in slack areas or behind large boulders.

Question 2

This was probably the least popular question in **Section A**

- (a) (i) There were few precise locations but many identified the Tropic of Capricorn in general terms.
- (ii) Many identified that high pressure shifted from the sea to land and vice versa, but few identified specific areas with any degree of accuracy.
- (b) Although most candidates were clear about winds blowing from high to low pressure only a relatively small number went on to describe accurately the tri-cellular model. Even for those who described the tri-cellular model, there was some confusion over the direction of uplifting and subsiding air and the reasons for that. Poor answers had winds blowing from low to high pressure, cool surface temperatures causing low pressure and high surface temperatures causing high pressure. A small number did mention subsiding air in the tropics but few discussed the adiabatic processes. Some candidates did gain useful marks by outlining the seasonal changes in monsoonal South East Asia and by describing land and sea breezes.

Question 3

- (a) The vast majority achieved full marks but some weaker candidates correctly identified water content but did not give the range of velocities.
- (b) There was generally a very poor response to this question, although there were noticeable exceptions. Many candidates simply used the diagram and mentioned the speed and water content of the two mass movement processes. Many candidates seemed to be describing slope wash or soil erosion instead of mudflows. The role of water was simply in adding weight to the material, thus initiating movement. The process of lubrication or the reduction of strength with increasing pore water pressures was hardly mentioned at all. The type of movement with internal deformation was also largely unknown. Knowledge and understanding of soil creep was not much better. However, as noted in the preliminary remarks, a minority of candidates thoroughly understood that soil creep was a 'heave' processes occasioned by either freezing and thawing or wetting and drying.

Question 4

- (a) Most candidates achieved the full marks. In the past, Examiners' reports have commented on the incomplete use of the data provided and lack of real comparison. This time answers to this comparison question made full use of the data and gave 'real' comparison using linking words such as 'while', 'however', 'as'.
- (b) Most understood the concept of dependency ratio but few could then see why it might be misleading for LEDCs. An understanding of the dependency ratio enabled some marks to be awarded, but often that was the only element that could be credited. Some candidates, quite rightly, suggested that the data might be misleading because of inaccuracies in population

measurement. However, others were able to articulate valid reasons, such as many children working before the usual working age and some working beyond the usual retirement age. There was also the point that many of working age were essentially dependent.

Question 5

- (a) Almost every candidate mentioned former Yugoslavia.
- (b) Most candidates achieved two marks by correctly identifying the numbers of migrants from the different countries. A much smaller number of candidates were able to provide a clear synthesis and overview of the pattern. Many produced a partial description of pattern by emphasising Switzerland's central position and neighbouring countries. Few described the anomalies in the pattern. In previous years where questions have asked for a description of pattern, similar inadequacies have been noted. Pattern is one of the indicator words that need more consideration when it comes to examination technique.
- (c) The main issue with answers to this question was that many candidates gave an LEDC perspective to Switzerland, not realising that the country was highly developed and features such as shanty towns, water pollution, crime and disease were unlikely effects of in-migration. However, many of the points raised were relevant, such as competition for jobs, different languages and social customs, and most candidates achieved reasonable marks.

Question 6

- (a) The correct answer was invariably provided.
- (b) There were only three marks available for this part of the question and most candidates achieved 2 or 3 marks. As noted for **Question 4**, most candidates did compare and did support the answer with data from the figure.
- (c) The majority of candidates described the effects of rural-urban migration but many ignored the effect of natural increase. However, a few candidates mentioned natural increase but ignored rural-urban migration.

Section B

Question 7

This was the most popular question in **Section B**

- (a) (i) The majority managed to get the definitions of abrasion and hydraulic action at least partially correct. Hydraulic action was mostly described as the process whereby air gets trapped in joints and crevices, although some did describe the erosive effect of the sheer force of the water. Abrasion was often described simply as a sandpaper effect without detail of the processes itself. No candidate indicated that the abrasive tools should be at least as hard as the material being abraded. Abrasion was sometimes confused with attrition.
- (ii) The majority understood that the process involved rocks or other particles colliding with each other and producing smaller particles. A fewer number went on to explain how this affected the load carried by the river and even fewer noted that the particles became more rounded as well as smaller.
- (b) There was a somewhat limited response to this question. Most described oxbow lakes which were very marginal to the question. River cliffs and point bars were often described but the operation of the processes was described in simplistic terms. If helicoidal flow was mentioned, its operation was often confused. Diagrams of 'corkscrews' were not very helpful. Few candidates understood that material eroding from river cliffs was then deposited at the next point bar downstream. Riffles and pools were very rarely described. A sizeable minority described braiding which is not really relevant in meandering channels. A very few also described levées, bluffs and floodplains. These are valley features, not features of the river channel.

- (c) Good answers focused on the effects of human activity in preventing floods whilst incorporating the causes of floods. The best answers evaluated and pointed out natural causes. Weaker answers often concentrated on deforestation and urbanisation. Few discussed the 'to what extent' phrase in the question. Many thought that dam bursts were the major causes of floods. Low flows received less attention and many candidates ignored them completely. Questions of this type require candidates to look at a variety of causes of floods and low flows, both natural and caused by human activity, and make a reasoned judgement as to where the man cause lies. Consequently it was necessary to mention precipitation or snow melt and not concentrate solely on human activities. Most major river floods are caused by heavy and intense precipitation.

Question 8

- (a) (i) Most candidates stated temperature and wind but descriptions were varied and were often simple statements that as temperature increased so did evaporation. Few outlined the transference from a liquid to a gas.
- (ii) Most candidates understood that condensation was involved somewhere but describing the correct conditions proved difficult for many. However, there were some excellent answers referring to radiation cooling under clear night-time conditions and condensation on surfaces.
- (b) Most candidates recognised the need to describe the six-part model and produced reasonable diagrams. However, the nature of the radiation, i.e. short or long wave, was often ignored or was described the wrong way. Latent heat transfer and sensible heat transfer were sometimes omitted and, if included, were rarely described accurately. There were indications that the model had simply been remembered as in rote learning with little understanding of the processes involved. The diagram can be learnt quite simply, but understanding is more complicated.
- (c) Many candidates only referred to the rise in temperature. Very few were able to articulate other effects such as increased precipitation and drought in some areas, increased storminess and cyclone and hurricane activity. Many strayed off the question into sea level rise and the effects on fauna such as polar bears. Also, a sizeable minority, usually the weaker candidates, attempted to explain the cause of global warming, with the depletion of the ozone layer again to the fore.

Question 9

- (a) (i) There were very few accurate definitions of spheroidal weathering. Most described it as exfoliation. Few understood that it occurred underground as a result of chemical weathering. The definitions of humic acid were generally better than those for spheroidal weathering. Most recognised that humus was somehow involved and many described the process of chelation.
- (ii) The majority of candidates understood the basic process of crystal growth, relating it to evaporation of water and the deposition of salt in the rock. Some ignored the fact that the process needs to be repetitive for the greatest pressure to build up. Also, water in joints was stressed rather than in the rock pores. It is very difficult to build up pressure in open joints. Diagrams, similar to frost action, were shown with gaping joints. Salt weathering would not occur in such situations.
- (b) Candidates understood carbonation much better than hydrolysis with the effect of carbonic acid on calcium carbonate being accurately described. The role of climate was simply described as the need for water and temperature. Understanding of hydrolysis was much poorer, although many realised that granite was involved somewhere. The better candidates did realise that feldspar was weathered into kaolin (china clay). The chemical processes involved were only understood very vaguely.
- (c) This was answered generally quite well and good marks were obtained. Some candidates described three or four landforms rather than the two required and so wasted time. Many ignored the effect of convection currents and some managed to get the plates the wrong way and with wrong characteristics. But these were in the minority. Some of the diagrams were excellent, though there are still many diagrams of two continental plates colliding like trains with great buckling of the plates. When two continental plates collide although subduction does not occur, one plate will shear underneath the other along a major fault or thrust plane. This is where the earthquakes are initiated. The plates themselves do not buckle but the sediments scraped off the ocean floor are folded and rise up over the upper plate creating young fold mountains. The better candidates did describe the importance of such accretionary sediment wedges.

Section C

Question 10

- (a) (i) The rudiments of the definition of life expectancy were understood by the majority of the candidates although a sizeable number omitted the 'average'.
- (ii) Two factors were generally known and there some excellent descriptions. However, some candidates wrote in very general terms about general standards of living without focusing on the effect on life expectancy.
- (b) Most candidates achieved some marks by describing the demographic transition model, although fewer were able to relate the model to development. If development was mentioned it was usually in the context of industrial development rather than socio-economic development. As in previous years, the knowledge of which countries are at which stage was limited. Many candidates wasted much time in drawing the model.
- (c) This question enabled most candidates to gain reasonable marks. The China one child policy was the most popular but Singapore was also chosen as well as Romania. The basic elements of the Chinese one child policy were known by most, even though there was an over emphasis on the policy rather than the problems created. However, there were many excellent and detailed accounts with many answers receiving marks in Level 3.

Question 11

- (a) (i) The vast majority of candidates gained full marks.
- (ii) This was an accessible question for most candidates with Indonesia, Iraq and Afghanistan as popular examples.
- (b) This was a straightforward question with most candidates being able to describe and explain push and pull factors although there was, again, a tendency to simply reverse the factors. The decision-making component of the question was often ignored or treated very simply.
- (c) There were some objective references to the nature of migration from and to countries such as New Zealand, Brunei and South Africa. Most candidates tended to describe a stereotypical young man leaving his wife and family at home to seek work elsewhere. The degree of assessment tended to be weak, if it was included. The most popular assessment was in terms of more career oriented women in MEDCs migrating as well as retirees moving to more pleasant environments.

Question 12

There were very few answers to this question.

- (a) This was a wide-ranging question but required good specific knowledge of Central Business Districts. The answers were either excellent, with good local knowledge, or very generic with descriptions that could have applied to CBDs anywhere. A study of a CBD with which candidates are familiar would have helped them in the examination.
- (b) This part of the question was quite accessible and was answered reasonably well with the usual account of mass rural-urban migration and the consequences. The usual Brazilian, African and Indian examples were used as examples.
- (c) This proved to be a very taxing question with very few good examples. The main problem was that few candidates knew very much about manufacturing in urban areas especially as urban areas in LEDCs and MEDCs have essentially different characteristics. This topic is clearly outlined in the syllabus in 'The changing structure of urban settlements' so should have been covered in preparing candidates for the examination.

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Key messages

- Candidates need to apportion their time between parts **(a)** and **(b)** according to the mark allocation, in other words spend longer developing their answers to part **(b)** than part **(a)**.
- Geographers should develop their skills in producing labelled or annotated diagrams and refer to them in the text. Where sketches from photographs are required the drawing must be based on what the photograph shows, and not some theoretical example or diagram.

General Comments

Overall the standard was in line with that of recent previous examinations with the usual wide range in the quality of answers within it. In the better scripts, candidates not only displayed a sound knowledge and understanding of physical geography at A Level but also used appropriate terminology effectively, and were precise in their descriptions and explanations. A lack of accurate and/or fine detail was typical of the weaker candidates. The better answers were those that addressed the specific demands of the question: all candidates need to pay sufficient attention to the command words such as 'describe', 'explain', 'evaluate', 'identify', 'to what extent', etc. Examiners setting questions never require candidates to simply 'write what they know about a topic'. Unfortunately many candidates were keen to do just that.

The division of questions into two parts did seem to pose a problem for many candidates. Parts **(a)** tested basic knowledge requiring candidates to offer identification, descriptions and or explanations and comparisons of some part of the syllabus content. Being a straightforward demand, many candidates expanded their answers beyond what was required for what was two fifths of the total question marks. This often led in such cases to limited responses to parts **(b)**. Most part **(b)** questions demanded some evaluative element in answers; often this aspect of the questions was not considered, or considered sufficiently, with the inevitable loss of any credit available.

The choice of 'Hazardous environments' continued to be the most popular and selected by almost all the candidates. Although answers to that option's questions were generally better than those from the other chosen environments, there were often weaknesses in addressing the specific physical aspects of the question. This often led to unbalanced answers such as protracted accounts of the responses in LEDCs versus MEDCs in **Question 5(b)**, which were marginally relevant in any case. Similarly in **Question 6(a)**, many candidates wrote largely of human involvement 'causing' mass movements whereas the actual cause would be physical factors and processes. There were similar tendencies in answers to the parts **(b)** of the coastal environment questions. This is a paper on advanced physical options but in both the **Question 3(b)** 'how human activities have impacted on landforms' and in **Question 4(b)** 'the major threats to coral', there were too many cases where the landforms in **3(b)** and the physical aspects of coral in **4(b)** were given minimal consideration. Candidates should aim for more balanced answers.

The use of appropriate and well documented examples, or case studies, were again a feature in many of the more successful answers. However, Examiners commented upon what they felt was a deterioration in the quality of well executed and accurate diagrams. This was evident in answers to **Questions 1(a)**, where one was required and **4(a)**, **6(a)** and **8(a)**. A relevant and well executed diagram or sketch map, appropriately annotated, should be an important skill for geography candidates. Their use in answers would often reinforce or clarify the written text and may in some cases replace the need for extended writing.

Examiners continue to be impressed by the general standard of written English achieved by so many of the candidates for whom it is a second language. They were also impressed by the generally clear legibility of their writing and presentation.

Comments on specific questions

Tropical environments

Question 1

- (a) The question demanded two responses; the first a description of the landform with an annotated diagram and secondly an explanation of its formation. Some candidates did achieve this effectively with labelled sketch diagrams clearly representative of the photograph; the main domed landform with its pattern of sheet joints as well as the boulder strewn surrounding area. Better candidates then gave clear accounts of the processes and stages to explain the landform. They were aware of the role of deep chemical weathering (hydrolysis) and joint patterns in creating the undulating basal weathering surface and then the stages of regolith removal by erosion and the emergence of landforms. However, such clear and accurate answers were the exceptions and the responses to both demands by many candidates required greater accuracy and detail. Diagrams were either poorly executed or of little relevance and understanding of the processes and past erosional history, with the impact of climate change, was either weak or partial.
- (b) This was generally better attempted than part (a) with most candidates able to give a basic description of the nature of savanna vegetation. Better candidates distinguished between open and closed types or showed the changes from the wetter TRF margins to the drier desert ones. Many answers needed more examples beyond baobab and elephant grass. The response to climate was well understood by many but the nature of soils and human interference were the weak parts in many cases. There were some good responses where candidates did show understanding of the impact of human management and mismanagement, that the vegetation was sub-climax or plagioclimax together with the responses to fire both natural and initiated by humans. Similarly those better candidates showed a knowledge of soils; that they were lateritic and when baked hard could inhibit tree and shrub growth.

Question 2

- (a) There were some excellent examples of good knowledge and understanding of monsoons where candidates gave accurate descriptions backed up with sound data. These were mostly with reference to the Indian sub-continent where they demonstrated the role of seasonally alternating high and low pressure systems with the resulting South West and North East monsoon winds. Those candidates appreciated the role of land and sea masses as well as the movement of the ITCZ and that much of the rainfall was orographically induced. Weaker candidates often could not distinguish clearly between the two types of climate and understanding, particularly of the monsoon system, was either extremely limited or absent from many answers. They would often only refer to monsoons as land and sea breezes, i.e. a diurnal phenomenon. Similarly, there were some good answers to the seasonally humid climates with appropriate data and understanding of the movements of the ITCZ but what was often lacking was an understanding of rainfall through convergence and convective uplift.
- (b) To some extent this mirrored the responses to part (b) of **Question 1**, in that there was reasonable knowledge of the vegetation and the influence of climate but generally less good knowledge and understanding of human influences. Good candidates went beyond the basic description of the tripartite structure of the TRF, and a mention of buttress roots and drip tipped leaves, to detail how the nature of the varieties of vegetation were a response to constant high temperatures, rainfall and light, or lack of it. Very few candidates explained how the 'nature of the vegetation' had been influenced by human activities; rather they explained how it had been replaced after clearance by agriculture, mining and settlements. Some included 'slash and burn' activities but rarely to the growth of secondary forest, less tall and less diverse than original climax vegetation. Similarly selective felling was included in some answers but not how that influenced the vegetation, i.e. allowing greater sunlight penetration to lower levels and shrub layers.

Coastal environments

This was the second most popular choice of option after hazardous environments.

Question 3

- (a) In past years, Examiners have commented upon the fact that many candidates have not understood the term cliff profile. This question should have clarified that but very few candidates answered this well. Acceptable responses were candidates suggesting that 'A', a 'slope over wall' profile, could be explained by weaker rocks overlying stronger ones with sub aerial processes producing the convex upper form. Another acceptable explanation was that vertical cliff retreat had not reached a final stage of replacing an original slope profile. Very few candidates recognized that in 'B' the profile was best explained by seaward dipping sedimentary strata with slabs of rock sliding down as wave action continually eroded and removed material from the slope (cliff) foot. Profile 'C' could have been best explained in terms of horizontal strata (or even vertical) with active cliff foot erosion and removal maintaining steady cliff retreat. There were some very good responses where candidates did reveal an excellent understanding of the relationships between processes materials and form but they were very much a minority.
- (b) Many candidates took this as an opportunity to write about coastal management and immediately detailed the introduction of groynes, sea walls and numerous and various types of civil engineering projects. This approach could gain some credit where candidates referred to changes in the form of beaches or impact on cliff erosion, etc. Better answers were those where candidates used a stretch, or stretches, of coast to demonstrate how activities have interfered with the dynamic equilibrium of a coastal system. Some showed how harbour or breakwater construction had arrested longshore drift resulting in the build up of beaches which in turn stopped cliff foot erosion and led to cliff decline. Such good candidates would then explain how the resultant starving of beach replenishment down coast led to accelerated cliff erosion. Other good examples included the effects of dam construction along rivers which reduced the input of sediment into the coastal system, coastal quarrying and off shore dredging. The impact of human activities on coral landforms was also an acceptable example. Where such approaches were backed up with appropriate detail and accuracy and the impact on landforms was central to the answer, then good credit was awarded.

Question 4

This was the more popular choice of costal question and generally the better attempted.

- (a) Very few candidates detailed the processes of transport per se, i.e. that sediment was transported by either suspension or traction and that it would be higher energy waves that could move larger materials such as pebbles and cobbles. There were some quite good attempts to describe the action of swash and backwash and related to constructive and destructive waves. Good candidates developed those to detail the formation and morphology of beaches as one of their two coastal landforms. More commonly, candidates focused immediately on longshore drift as sediment transport, which was explained at a range of levels of accuracy, and then the growth of a spit at an estuary. Mostly that was at a very basic level with crude diagrams. At A Level, Examiners would expect accurate representation in relating prevailing wind to longshore drift, recurved or hooked spits and the role of wave refraction and/ or secondary winds. A second common landform was a salt marsh, but only few candidates went beyond simple deposition in slack water behind a spit. There were some better responses where candidates detailed the mixing of river silts and mud with salt water and explained the process of flocculation as well as the role of pioneer salt tolerant plants trapping sediment and so on. Weaker candidates frequently extended the basic longshore process to describe bars and tombolos as a second choice of a landform but at a very basic level.
- (b) There were many answers of a satisfactory level where candidates identified the fragile nature of coral and the limiting factors determining their occurrence and distribution, e.g. temperature range, depth and clarity of water, salinity and so on. They then listed a range of threats posed such as harmful impacts from tourism, fishing, pollution, etc. The better answers were the ones with accurate detail from selected and well developed examples. Such answers addressed the effects of human activities at both the local and global scale, i.e. the threat from global warming, as well as natural threats from storms and predators such as the crown of thorns starfish.

Hazardous environments

As in previous years this was almost the universal choice of an option.

Question 5

- (a) Very few candidates showed an accurate understanding of the nature of 'hot spots' i.e. that they are located above permanent and deep seated magma plumes such under the Yellowstone area in the North American plate and the Hawaiian islands centred in the Pacific plate. The map provided showed such distributions. Even though many candidates had no clear understanding of the nature of hot spots, the map of their distribution should have enabled them to 'describe how their distribution differs from that of other types of volcano'. This was not so in many cases. It was clear that in this, and other questions, where there was resource material, a number of candidates paid little attention to it. As ever, there some very good responses where both the nature and distribution of hot spots were well understood; such answers often detailed the movement of the Pacific plate over a hot spot to produce the line of extinct and active volcanoes.
- (b) This was much better attempted than part (a). Good answers addressed both 'to what extent and why' effectively. The massive damage and loss of life caused by recent earthquakes were well detailed in such answers and compared with the generally lower impact of volcanic activity. The explanation as to 'why' was principally the predictability of volcanic events and that volcanoes are at fixed and visible locations whereas earthquakes are virtually impossible to predict both in time and location. Examples of effective evacuation following close monitoring of volcanoes e.g. Montserrat, St. Helens were cited in good answers. In the case of earthquakes, some of the better candidates recognized that major settlements had developed with no awareness that they were located above potentially hazardous fault lines. In weaker answers, candidates tended to simply describe the effects of earthquake and volcanic activity, often with examples but with little or weak assessment.

Question 6

This was the more popular choice of question from the hazards options.

- (a) All candidates provided a range of types of mass movements with mud flows and avalanches most dominant. There was generally a lack of precision in explaining how they occurred. Heavy rainfall and steep slopes were recognised as factors but cohesion of the regolith, lubrication and increased weight were less understood i.e. that some critical point was reached where forces overcame resistance leading to slope collapse. Similarly there was a lack of detailed understanding of the nature of both snow and rock avalanches as well as rotational slumping and slides associated with geological structures and lithology, e.g. movement along slip planes where, say, chalk or some other permeable or porous rocks overly clays and so on. Many candidates cited the building of dense settlements on slopes (Rio de Janeiro and Hong Kong) as causing mass movements but often omitting the trigger of a high rainfall event which lubricated the regolith/soil to a point where the weight of the settlements overcame resistance. In the same way, some candidates stated that deforestation of, and cultivation on, slopes caused mass movements which of course they do not on their own. Very popular examples were mud flows (lahars) associated with named volcanic events but that sometimes triggered accounts of lava and pyroclastic flows which are not mass movements. There was often considerable misunderstanding in detailing some of the examples commonly given; notably the Aberfan and the Vajont Dam disasters.
- (b) As ever, the best answers were those which addressed fully the specific demands of the question and demonstrated a depth of understanding of the subject matter through well selected examples. Other candidates need to address the key command in the question, i.e. 'to what extent' rather than document a range of possible preventative measures. Frequently these were merely reversing the causes given in part (a) such as; not to build on slopes, afforestation of slopes, regrading of slopes. Few candidates could distinguish effectively between prevention of mass movements and limitation of their hazardous effects. In better answers these were treated more successfully in that candidates stated that prevention might be impossible but that some measures might reduce their occurrence such as land use change; afforestation, terracing, restriction of buildings and so on, although drainage was rarely given which would have been a significant measure in many cases. Many candidates did provide good details of some measures such as rock pinning and netting and the use of fences, forest breaks and sheds over roadways in the case of avalanches. There were many who wrote too extensively on preparedness scenarios more

apposite to tectonic disasters, e.g. having medical resources available, trained rescue teams, evacuation plans. These had their relevance but needed to be made ore specific to mass movement hazards.

Arid and semi-arid environments

This was the least popular choice of options.

Question 7

- (a) Most candidates were able to give a basic outline of the characteristics of hot arid environments, the better answers being backed up with sound data and covering more than just temperatures and rainfall. Differentiation came particularly with the ability of candidates to explain the part played by pressure systems and ocean currents in the distribution of the deserts shown in the map provided. There were some very clear and accurate accounts of the effect of the adiabatic warming of the descending limb of the Hadley cell at around 30° N and S. Other candidates knew of its role but were less able to explain it fully. Even more confused was the understanding of the effect of the west coast cold ocean currents. Again some very good answers provided a clear explanation of the cooling of air over the cold water and hence being moisture deficient and then warmed when moving over the coastal land areas. Others knew that there was some effect but lacked the ability to explain it, often confusing an ocean current with an air current. Some candidates irrelevantly offered explanations in terms of rain shadow and continental effects for which no credit could be awarded as the question specifically asked for high pressure systems and ocean currents.
- (b) This was quite well answered by the majority of candidates although in many answers was a lack of sufficient consideration of the climate and of the recurrence of droughts. Similarly, although candidates detailed the effects of deforestation, over grazing and cultivation, some continued to develop the problem of soil erosion and deflation and the movement of desert conditions into marginal areas i.e. 'desertification'. Good credit was given to the many answers which detailed, with examples, the pressures of increased population on the need for fuel and building materials from the forest as well as the need for increased food production leading to over grazing and more intensive agriculture. Good studies from the Sahel supported the better answers. Similarly there were some good responses to 'attempted or possible solutions', but several merely listed with little or no evaluation. Cloud seeding was often cited but with no consideration as to whether it had been successful or feasible. Similarly, irrigation was advanced as a solution but without the many factors which might make it ineffective or even available. There were however some better responses where candidates detailed examples of successful schemes of drip irrigation, alternative power/fuel sources, input of fertilizers and mulching with selected crop strains. In the best answers, there was a realisation of the poverty of most such areas and that solutions required knowledge and capital.

Question 8

- (a) All candidates recognised that physical weathering was dominant and resulted from the effect of the large range of diurnal temperature. When it came to detailing the nature of weathering there was limited accurate understanding of the processes. Many gave freeze-thaw fracturing as a dominant process which is not feasible with the limited water available and lack of constant sub-zero temperatures. Exfoliation (onion skin weathering) was better explained although there was often confusion with the heating and cooling of different minerals which would lead to granular disintegration rather than exfoliation. Salt weathering was often included but needed clearer explanations in most cases. Some candidates recognised that chemical weathering could be significant from occasional rainfall events, or, more likely from dew on the underside of rocks. Wind erosion was generally better explained and good candidates recognised that abrasion was most effective closer to the ground, deflation was allowed as it does reduce the ground surface although strictly a transportational rather than an erosional process. Similarly, apart from some exceptions, the understanding of landforms was generally below what is expected at this level. A number of candidates included dunes, which were hardly relevant, and there was poor understanding of zeugens and yardangs. However, others did provide clear sketches of mushroom rocks, well annotated to show the effect of abrasion up to 30 cms and there were many well drawn examples of exfoliated rocks.

- (b) There were some positive approaches from candidates who showed a good understanding of the biogeography, i.e. that the harsh climate of aridity, high temperatures and winds was not conducive to biodiversity which remained low as plants had to develop specialist adaptations in order to survive. Similarly a number of candidates wrote of soils lacking humus and being characterised by upward capillarity and salt accumulation, thus posing problems for any agriculture. Relevant examples were given in better answers of successful development such as irrigation farming along the Nile and where oil extraction had provided capital for desalinisation of sea water leading to urban development. However little appeared on the possibilities of harnessing solar energy or recent exploitation of deep aquifers of fossil water. There were some cases of misinterpretation of the question where candidates read the question to mean the 'development of landforms', i.e. an extension from part (a) Also quite a few candidates struggled with 'to what extent ...' and were only able, at best, to state that climate, nutrient cycling, biodiversity and soils hindered development.

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Comments on specific questions

Tropical environments

Question 1

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Question 2

- (a) There were some excellent examples of good knowledge and understanding of monsoons where candidates gave accurate descriptions backed up with sound data. These were mostly with reference to the Indian sub-continent where they demonstrated the role of seasonally alternating high and low pressure systems with the resulting South West and North East monsoon winds. Those candidates appreciated the role of land and sea masses as well as the movement of the ITCZ and that much of the rainfall was orographically induced. Weaker candidates often could not distinguish clearly between the two types of climate and understanding, particularly of the monsoon system, was either extremely limited or absent from many answers. They would often only refer to monsoons as land and sea breezes, i.e. a diurnal phenomenon. Similarly, there were some good answers to the seasonally humid climates with appropriate data and understanding of the movements of the ITCZ but what was often lacking was an understanding of rainfall through convergence and convective uplift.
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Coastal environments

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Question 3

- (a) In past years, Examiners have commented upon the fact that many candidates have not understood the term cliff profile. This question should have clarified that but very few candidates answered this well. Acceptable responses were candidates suggesting that 'A', a 'slope over wall' profile, could be explained by weaker rocks overlying stronger ones with sub aerial processes producing the convex upper form. Another acceptable explanation was that vertical cliff retreat had not reached a final stage of replacing an original slope profile. Very few candidates recognized that in 'B' the profile was best explained by seaward dipping sedimentary strata with slabs of rock sliding down as wave action continually eroded and removed material from the slope (cliff) foot. Profile 'C' could have been best explained in terms of horizontal strata (or even vertical) with active cliff foot erosion and removal maintaining steady cliff retreat. There were some very good responses where candidates did reveal an excellent understanding of the relationships between processes materials and form but they were very much a minority.
- (b) Many candidates took this as an opportunity to write about coastal management and immediately detailed the introduction of groynes, sea walls and numerous and various types of civil engineering projects. This approach could gain some credit where candidates referred to changes in the form of beaches or impact on cliff erosion, etc. Better answers were those where candidates used a stretch, or stretches, of coast to demonstrate how activities have interfered with the dynamic equilibrium of a coastal system. Some showed how harbour or breakwater construction had arrested longshore drift resulting in the build up of beaches which in turn stopped cliff foot erosion and led to cliff decline. Such good candidates would then explain how the resultant starving of beach replenishment down coast led to accelerated cliff erosion. Other good examples included the effects of dam construction along rivers which reduced the input of sediment into the coastal system, coastal quarrying and off shore dredging. The impact of human activities on coral landforms was also an acceptable example. Where such approaches were backed up with appropriate detail and accuracy and the impact on landforms was central to the answer, then good credit was awarded.

Question 4

This was the more popular choice of costal question and generally the better attempted.

- (a) Very few candidates detailed the processes of transport per se, i.e. that sediment was transported by either suspension or traction and that it would be higher energy waves that could move larger materials such as pebbles and cobbles. There were some quite good attempts to describe the action of swash and backwash and related to constructive and destructive waves. Good candidates developed those to detail the formation and morphology of beaches as one of their two coastal landforms. More commonly, candidates focused immediately on longshore drift as sediment transport, which was explained at a range of levels of accuracy, and then the growth of a spit at an estuary. Mostly that was at a very basic level with crude diagrams. At A Level, Examiners would expect accurate representation in relating prevailing wind to longshore drift, recurved or hooked spits and the role of wave refraction and/ or secondary winds. A second common landform was a salt marsh, but only few candidates went beyond simple deposition in slack water behind a spit. There were some better responses where candidates detailed the mixing of river silts and mud with salt water and explained the process of flocculation as well as the role of pioneer salt tolerant plants trapping sediment and so on. Weaker candidates frequently extended the basic longshore process to describe bars and tombolos as a second choice of a landform but at a very basic level.
- (b) There were many answers of a satisfactory level where candidates identified the fragile nature of coral and the limiting factors determining their occurrence and distribution, e.g. temperature range, depth and clarity of water, salinity and so on. They then listed a range of threats posed such as harmful impacts from tourism, fishing, pollution, etc. The better answers were the ones with accurate detail from selected and well developed examples. Such answers addressed the effects of human activities at both the local and global scale, i.e. the threat from global warming, as well as natural threats from storms and predators such as the crown of thorns starfish.

Hazardous environments

As in previous years this was almost the universal choice of an option.

Question 5

- (a) Very few candidates showed an accurate understanding of the nature of 'hot spots' i.e. that they are located above permanent and deep seated magma plumes such under the Yellowstone area in the North American plate and the Hawaiian islands centred in the Pacific plate. The map provided showed such distributions. Even though many candidates had no clear understanding of the nature of hot spots, the map of their distribution should have enabled them to 'describe how their distribution differs from that of other types of volcano'. This was not so in many cases. It was clear that in this, and other questions, where there was resource material, a number of candidates paid little attention to it. As ever, there some very good responses where both the nature and distribution of hot spots were well understood; such answers often detailed the movement of the Pacific plate over a hot spot to produce the line of extinct and active volcanoes.
- (b) This was much better attempted than part (a). Good answers addressed both 'to what extent and why' effectively. The massive damage and loss of life caused by recent earthquakes were well detailed in such answers and compared with the generally lower impact of volcanic activity. The explanation as to 'why' was principally the predictability of volcanic events and that volcanoes are at fixed and visible locations whereas earthquakes are virtually impossible to predict both in time and location. Examples of effective evacuation following close monitoring of volcanoes e.g. Montserrat, St. Helens were cited in good answers. In the case of earthquakes, some of the better candidates recognized that major settlements had developed with no awareness that they were located above potentially hazardous fault lines. In weaker answers, candidates tended to simply describe the effects of earthquake and volcanic activity, often with examples but with little or weak assessment.

Question 6

This was the more popular choice of question from the hazards options.

- (a) All candidates provided a range of types of mass movements with mud flows and avalanches most dominant. There was generally a lack of precision in explaining how they occurred. Heavy rainfall and steep slopes were recognised as factors but cohesion of the regolith, lubrication and increased weight were less understood i.e. that some critical point was reached where forces overcame resistance leading to slope collapse. Similarly there was a lack of detailed understanding of the nature of both snow and rock avalanches as well as rotational slumping and slides associated with geological structures and lithology, e.g. movement along slip planes where, say, chalk or some other permeable or porous rocks overly clays and so on. Many candidates cited the building of dense settlements on slopes (Rio de Janeiro and Hong Kong) as causing mass movements but often omitting the trigger of a high rainfall event which lubricated the regolith/soil to a point where the weight of the settlements overcame resistance. In the same way, some candidates stated that deforestation of, and cultivation on, slopes caused mass movements which of course they do not on their own. Very popular examples were mud flows (lahars) associated with named volcanic events but that sometimes triggered accounts of lava and pyroclastic flows which are not mass movements. There was often considerable misunderstanding in detailing some of the examples commonly given; notably the Aberfan and the Vajont Dam disasters.
- (b) As ever, the best answers were those which addressed fully the specific demands of the question and demonstrated a depth of understanding of the subject matter through well selected examples. Other candidates need to address the key command in the question, i.e. 'to what extent' rather than document a range of possible preventative measures. Frequently these were merely reversing the causes given in part (a) such as; not to build on slopes, afforestation of slopes, regrading of slopes. Few candidates could distinguish effectively between prevention of mass movements and limitation of their hazardous effects. In better answers these were treated more successfully in that candidates stated that prevention might be impossible but that some measures might reduce their occurrence such as land use change; afforestation, terracing, restriction of buildings and so on, although drainage was rarely given which would have been a significant measure in many cases. Many candidates did provide good details of some measures such as rock pinning and netting and the use of fences, forest breaks and sheds over roadways in the case of avalanches. There were many who wrote too extensively on preparedness scenarios more

opposite to tectonic disasters, e.g. having medical resources available, trained rescue teams, evacuation plans. These had their relevance but needed to be made ore specific to mass movement hazards.

Arid and semi-arid environments

This was the least popular choice of options.

Question 7

- (a) Most candidates were able to give a basic outline of the characteristics of hot arid environments, the better answers being backed up with sound data and covering more than just temperatures and rainfall. Differentiation came particularly with the ability of candidates to explain the part played by pressure systems and ocean currents in the distribution of the deserts shown in the map provided. There were some very clear and accurate accounts of the effect of the adiabatic warming of the descending limb of the Hadley cell at around 30° N and S. Other candidates knew of its role but were less able to explain it fully. Even more confused was the understanding of the effect of the west coast cold ocean currents. Again some very good answers provided a clear explanation of the cooling of air over the cold water and hence being moisture deficient and then warmed when moving over the coastal land areas. Others knew that there was some effect but lacked the ability to explain it, often confusing an ocean current with an air current. Some candidates irrelevantly offered explanations in terms of rain shadow and continental effects for which no credit could be awarded as the question specifically asked for high pressure systems and ocean currents.
- (b) This was quite well answered by the majority of candidates although in many answers was a lack of sufficient consideration of the climate and of the recurrence of droughts. Similarly, although candidates detailed the effects of deforestation, over grazing and cultivation, some continued to develop the problem of soil erosion and deflation and the movement of desert conditions into marginal areas i.e. 'desertification'. Good credit was given to the many answers which detailed, with examples, the pressures of increased population on the need for fuel and building materials from the forest as well as the need for increased food production leading to over grazing and more intensive agriculture. Good studies from the Sahel supported the better answers. Similarly there were some good responses to 'attempted or possible solutions', but several merely listed with little or no evaluation. Cloud seeding was often cited but with no consideration as to whether it had been successful or feasible. Similarly, irrigation was advanced as a solution but without the many factors which might make it ineffective or even available. There were however some better responses where candidates detailed examples of successful schemes of drip irrigation, alternative power/fuel sources, input of fertilizers and mulching with selected crop strains. In the best answers, there was a realisation of the poverty of most such areas and that solutions required knowledge and capital.

Question 8

- (a) All candidates recognised that physical weathering was dominant and resulted from the effect of the large range of diurnal temperature. When it came to detailing the nature of weathering there was limited accurate understanding of the processes. Many gave freeze-thaw fracturing as a dominant process which is not feasible with the limited water available and lack of constant sub-zero temperatures. Exfoliation (onion skin weathering) was better explained although there was often confusion with the heating and cooling of different minerals which would lead to granular disintegration rather than exfoliation. Salt weathering was often included but needed clearer explanations in most cases. Some candidates recognised that chemical weathering could be significant from occasional rainfall events, or, more likely from dew on the underside of rocks. Wind erosion was generally better explained and good candidates recognised that abrasion was most effective closer to the ground, deflation was allowed as it does reduce the ground surface although strictly a transportational rather than an erosional process. Similarly, apart from some exceptions, the understanding of landforms was generally below what is expected at this level. A number of candidates included dunes, which were hardly relevant, and there was poor understanding of zeugens and yardangs. However, others did provide clear sketches of mushroom rocks, well annotated to show the effect of abrasion up to 30 cms and there were many well drawn examples of exfoliated rocks.

- (b)** There were some positive approaches from candidates who showed a good understanding of the biogeography, i.e. that the harsh climate of aridity, high temperatures and winds was not conducive to biodiversity which remained low as plants had to develop specialist adaptations in order to survive. Similarly a number of candidates wrote of soils lacking humus and being characterised by upward capillarity and salt accumulation, thus posing problems for any agriculture. Relevant examples were given in better answers of successful development such as irrigation farming along the Nile and where oil extraction had provided capital for desalinisation of sea water leading to urban development. However little appeared on the possibilities of harnessing solar energy or recent exploitation of deep aquifers of fossil water. There were some cases of misinterpretation of the question where candidates read the question to mean the 'development of landforms', i.e. an extension from part **(a)** Also quite a few candidates struggled with 'to what extent ...' and were only able, at best, to state that climate, nutrient cycling, biodiversity and soils hindered development.

GEOGRAPHY

Paper 9696/23
Advanced Physical Options

Key Messages

General Comments

Overall the standard was in line with that of recent previous examinations with the usual wide range in the quality of answers within it. In the better scripts, candidates not only displayed a sound knowledge and understanding of geography at 'A' level but also used appropriate terminology effectively, and were precise in their descriptions and explanations. A lack of accurate and/or fine detail was typical of the weaker candidates. These differences between the better and weaker answers were polarised in the treatment of physical geography.

This was a paper in physical geography options but too frequently the balance in answers was heavily weighted in favour of the impact on, or influence of, the human aspects of the parts **(b)**. In answering questions such as **4(b)**, candidates must understand the physical geography processes acting on coasts to be able to answer the question and not rely on descriptions of coastal protection methods and leave evaluation to unsupported statements such as 'this worked well'. Additionally the better answers were those that addressed the specific demands of the question whereas many candidates do not pay sufficient attention to the command words such as 'describe', 'explain', 'evaluate', 'identify', 'to what extent' etc. Examiners setting questions never require candidates to simply 'write what they know about a topic'. Unfortunately too many candidates were keen to do just that.

The division of questions into two parts did seem to pose a problem for many candidates. Parts **(a)** tested basic knowledge requiring candidates to offer identification, descriptions and/or explanations of some part of the syllabus content. Being a straightforward demand, too many candidates expanded their answers beyond what was required for what was two fifths of the total question marks. This often led in such cases to limited responses to parts **(b)**. Part **(b)** questions demanded some evaluative element in answers; too often this aspect of the questions was not considered, or considered sufficiently, with the inevitable loss of credit available.

The choice of 'Hazardous environments' continued to be the most popular and was selected by almost all the candidates. Although answers to that option's questions were generally better than those from the other chosen environments, there were often weaknesses in addressing the specific physical aspects of the question. This often led to unbalanced answers such as protracted accounts of the responses in LEDCs versus MEDCs in **Questions 5(b)** and **6(b)**. The use of appropriate and well documented examples, or case studies, were again a feature in many of the more successful answers. Examiners commented upon what they felt was a deterioration in the quality of well executed and accurate diagrams. This was evident in answers to **Questions 3(a)** and **(b)** and **6(a)**. A relevant and well executed diagram or sketch map, appropriately annotated, should be an important skill acquired by geography candidates. Their use in answers would often reinforce or clarify the written text and may in some cases replace the need for extended writing.

There were very few infringements of the rubric, the most common being that of answering more than the required two questions

Comments on specific questions

Tropical environments

This was an option selected by a relatively small number of candidates and there were no meaningful responses to **Question 2**

Question 1

- (a) This proved accessible and the description of the distribution was achieved quite well by the majority of candidates. The better answers gave generalisations related to latitude and coastlines whereas others merely named some of the countries or areas. However many candidates were less successful in providing adequate explanations for the distribution. In fact comparatively few candidates made the obvious link to climate and wrote mainly about tropical rain forest vegetation. The better answers were those where candidates stated that the distribution was climatically controlled and occurred where there was heating around the equator, low pressure, convergence and resultant uplift with constant convection rainfall; hence the year round high temperatures and rainfall. Where there were added data, very good credit was awarded.
- (b) The answers to this part of the question were generally limited. Most candidates went little further than describing 'slash and burn' activities and/or wholesale lumbering activities, i.e. destruction of the rainforest. The question command to consider 'the extent to which' was addressed by a very small number of candidates who used the Cuyabeno example in Ecuador effectively but there was generally an absence of conservation initiatives, selective controlled logging or sustainable agriculture alongside afforestation projects as in Brazil.

Coastal environments

This environment was a frequent choice of candidates. The choice within this option was fairly equally divided.

Question 3

- (a) In answers to any of the four choices of landform, very few candidates went beyond the simplest basic descriptions of their formation. In the case of beaches there were references to constructive and destructive waves but very little of beach formation; i.e. limited understanding of their morphology related to wave energy and materials. Spits were a popular choice and generally the better attempted, but too few candidates could give an accurate account of longshore drift related to the prevailing wind or a clear description of how recurves/hooks might have developed. Similarly in the case of salt marsh only a few candidates went beyond simple deposition in slack water behind a spit. The few better responses were those where candidates detailed the mixing of river silts and mud with salt water and explained the process of flocculation as well as the role of pioneer salt tolerant plants trapping sediment and so on. A small number chose headlands but yet again the level of response was below an expected 'A' level standard; typically it was a case of alternate 'hard and soft' rocks being eroded back unequally and illustrated by the simplest of diagrams. The one or two better answers gave specific geology and erosional processes with stages clarified by well drawn diagrams.
- (b) The few good answers made use of accurate and well detailed studies of a particular stretch of coast, the best of those often from their home areas. With those answers there were frequently a relevant and well executed sketch-map, but even so in some there was a tendency to ignore the actual landforms and too much of the civil engineering of human intervention. The weaker answers tended to be disjointed accounts from a number of disconnected locations with an emphasis on structures such as groynes, seawalls, revetments and gabion baskets; these were not infrequently drawn in detail which was generally an irrelevance unless directly linked to an impact on landforms. Within that approach, there were some creditable responses where candidates made reference to a stretch of coast, often that of Holderness or East Sussex, and explained the impact of both increased erosion and deposition on cliff and beach landforms.

Question 4

- (a) The term 'characteristics' was interpreted in different ways by candidates. Some took it to mean the needs of coral reefs for specific temperatures, salinity, light (and hence depth) and so on. Those factors were then taken by those candidates as satisfying the demand to describe distribution. Examiners gave as much credit as possible where candidates adopted that restricted approach. However, the best answers were those where candidates described the morphology and structure of the three principal types of reef; fringing, barrier and atoll. Some went further to explain their development related to different theories which was not a requirement of the question, as no explanation had been asked for. The best responses to 'distribution' referred to the requirement for tropical sea temperatures and clear waters as found globally within the tropics

along east coast margins of continents and around island groups of the Indian and Pacific oceans, etc.

- (b) Although their demands were different, the answers to this were often very similar to the responses to **Question 3(b)**, i.e. many candidates interpreted 'management' only in terms of coastal civil engineering structures and the 'problems' as their impact on cliffs and beaches. That approach was relevant for a degree of credit but the better answers were those where candidates showed a greater understanding of management. In such answers there was a clear statement of the issues to be addressed such as coastal erosion, human impact on dunes or corals or the impact of unrestricted building. Similarly the evaluative aspect of the question was addressed in the better answers.

Hazardous environments

This was a universal choice of option by candidates.

Question 5

- (a) There were many instances where candidates did little more than paraphrase, in some cases copy, the information given in the resource. The resource gave some basic facts but the cause of the avalanche required explanation which many candidates did not do, e.g. the steep slopes meaning that stability was reduced and that friction was more easily overcome. Good candidates were able to provide other factors such as a rise in temperatures and fresh snow falls on frozen snow surfaces which provided a slip plane. Some distinguished effectively between powder and slab avalanches and Examiners were prepared to give credit to those who explained the occurrence of rock and debris avalanches, although not a requirement for full marks. Most of the better candidates referred to external triggers; natural such as earthquakes/tremors and human ones such as skiing off piste.
- (b) This was quite well attempted by a number of candidates, the better answers drawing upon a range of hazards and comparing the degree of success between say earthquakes, which are difficult, if not impossible, to predict and hurricanes where with satellite imagery it was possible to identify their development as well as to track their paths. Good candidates then explained their often erratic course and why prediction of landfall location was not always successful. Many candidates knew of the Pacific tsunami warning centre and that success depended upon time given for evacuation from possibly affected coastal settlements. Other good approaches were evaluating the reliability of methods and apparatus and the ability to provide sufficient warning. These factors were well related to comparisons between MEDCs and LEDCs in good answers. There was an abundance of material which candidates could have drawn upon. In weaker answers the approach was often merely listing examples with limited discussion or a lack of accurate knowledge of methods and outcomes.

Question 6

Although popular, the responses to this question were generally disappointing.

- (a) The majority of answers were accounts of volcanoes occurring at different types of plate boundaries with a listing of an assortment of volcanic events such as those of Pinatubo and Mt St Helens. Details were given of lava and pyroclastic flows, tephra, lahars, etc, but not the factors leading to their causes. From such approaches, Examiners had difficulty in finding credit for relevance to the demand of the question i.e. 'factors that determine the nature of volcanic eruptions'. Some candidates knew of basic and acid lavas, although the term magma was often erroneously used in place of lava. However there was often confusion between which was viscous and which more mobile and also linking the type of lava to the nature of eruptions. There were some good answers where candidates demonstrated sound knowledge and understanding that basic lavas are more effusive with quieter eruptions and mostly lava flows whereas acid lavas are more explosive with ash clouds and pyroclastic flows and tephra. Such good candidates also related the types of lava to appropriate plate boundaries or hot spots.
- (b) This was often a case where the physical geography, such as the strength of an earthquake, the depth of its focus, location of the epicentre and nature of the relief and geology, was subsumed by a mass of detail of the human factors. Naturally there was a place for both, but this was a physical geography examination and there needed to be sound physical underpinning to answers for full

credit. This was not the case in many of the answers. Too often, apart from stressing the importance of earthquakes only being hazardous when they occur in populated areas, candidates compared the ability of MEDCs to predict (unlikely anyway), protect and prepare more effectively than densely populated LEDCs. There were some good examples given to support that approach where the effects of similar strength earthquakes were compared; such as Haiti and Christchurch, but important physical differences in such cases were often ignored. Too often there were protracted accounts of how building design and construction, plans for evacuation, relief aid, education and training could reduce the hazardous impact, i.e. a catch all approach applicable to almost any type of hazard. The fewer good answers showed a balanced approach with the very important physical aspects well demonstrated. Such answers included the importance of magnitude on the Richter scale which was clearly understood. Depth of focus and location of the epicentre were coupled to relief and sub-strata with land slides and liquefaction as possible secondary hazards. Good candidates kept the demand of 'the extent to which the hazardous impact was related to its strength' clearly to the fore in their discussion.

Arid and semi-arid environments

Very few candidates attempted questions from this option, in fact so few and of such limited quality that no meaningful generalisations can be offered.

GEOGRAPHY

Paper 9696/31
Advanced Human Options

Key messages

- Geography is multi-dimensional and, at this level, it is important to be able to identify factors and develop reasoning in more than one dimension (economic, social, environmental and political).
- Using examples is key to achieving higher marks, both in parts **(a)** and in parts **(b)** where often a developed and detailed case study is the heart of an effective response.
- Evaluative skills, evaluative language and an evaluative structure for extended writing are fundamental to success in parts **(b)** of questions.

General comments

The pattern of recent years was repeated with the popularity of the Options being observed in the following order: *Global interdependence*; *Environmental management*; *Production, location and change*; *Economic transition*.

The resources contained in the Insert were varied (an artist's impression, divided bar charts, a table and a graph) and interpreted satisfactorily by most candidates. Most recognised that Fig. 1 was a light industrial park, science park or business park setting. In Fig. 2 most candidates read the values on the vertical scale appropriately given that they were stacked one on top of the other. For example, Brazil in 2008 used approximately 4% biomass (the brown section) not 84% (as it was sitting on top of 80% hydro). In writing about Table 1 it was important to recognise that the tourist receipts were financial (money) not numbers of tourists. It also mattered to include the units (US\$ millions) and not just the numerical values from the table, e.g. "8500". Fig. 3 was satisfactorily understood and some expressed the observed divergence (the upward limb) occurring before regional convergence (the downward limb) well, using simple vocabulary. Teachers are reminded to ensure that throughout the course a variety of styles of resources should be used in teaching and learning in order to develop subject skills (Assessment Objective 3). The use of past papers for this is to be encouraged as it gives a good indication of the likely demand at A Level (and AS for the Paper 1 variants) as well as the kinds of questions that are likely to be asked.

Many candidates used subject vocabulary and technical terms effectively in their writing and received credit for doing so. One approach to teaching and learning would be for candidates to develop their own dictionaries of terms during the course which could then be used in revision and preparation for the examination. The dictionary could be of A to Z format, but might be more useful if arranged per Option. So for example, for *Production, location and change*, early entries might be *agglomeration* and *agricultural productivity* under A and, a later one, *technology* under T. The dictionary could be built up to ensure that all the terms in the syllabus were known and understood, and terms found in past papers also. This examination, the term that were interpreted least well was *constraint* in **Question 4(b)**. A constraint is understood to be something which restricts, limits or holds back an activity or a process, which constrains it. This question was about economic constraints on improving degraded environments, the most obvious of which is a lack of finance to fund a scheme or project.

Candidate performance could be further enhanced by the development of an understanding of scale (Assessment Objective 2.4), especially spatial scale. In geography scale matters and ranges from global, through international, that of world regions and/or continents, to national, regional (within a country) and local. It may also include groups of people and the individual. There were two places where scale was especially important this session. One was **Question 1(b)** which required an agricultural holding, producer or system. The other was **Question 3(b)** which asked for a 'named located scheme', such as a power station or HEP dam, not the overall national energy strategy which is also listed in the syllabus. Examiners were flexible when assessing **Question 6(b)** as to what was taken as the 'tourist area or resort'. Many candidates selected a resort town such as Victoria Falls, or a beach area or coastline such as the Costa del

Sol in Spain, or an island, such as Zanzibar. Others, with a global perspective, took the country of Spain or the country of Kenya as a tourist area, which was fully acceptable.

A few rubric errors were seen, always where candidates attempted more than the two questions from two different Options. The rubric on the question paper cover is clear and so this is avoidable.

Comments on specific questions

Production, location and change

Many more responses were seen to **Question 1** than to **Question 2**.

Question 1

The question consisted of two different kinds of demands. Part **(a)** required candidates to think through and develop their own answer in the given context. Part **(b)** involved the use of the case study from syllabus **section 1.2 The management of agricultural change**.

- (a)** There were three elements to making an effective response. The first was to interpret the stem correctly and to identify the appropriate context, i.e. that of food which 'is lost after harvest and never gets eaten or sold'. This meant, for example, that keeping seed to plant another year was not relevant, but that accidental spillage of seed was. The second was to develop a number of different ways in which such losses occur; e.g. rodents, rotting, the impact of severe weather, accidents during transport, or theft. Comprehensive answers were not required, but evidence was needed of a number of reasons. The third was to integrate exemplar support, e.g. of specific crops, events or from particular farms, as general responses were restricted to the usual maximum in parts **(a)** of 6/10 marks.
- (b)** This open question about agricultural production required candidates to structure the response themselves. Clues as to how to do this could be taken from the question, from the key words 'difficulties' and 'attempts' and the command 'assess'. Scale mattered, as made clear in the question, so, for example, answers on the European Union's Common Agricultural Policy or on more than one agricultural system were unsuitable. Some high quality evaluative work was seen, for example in relation to the introduction of the Green Revolution in India, or to improving agriculture in Zimbabwe, using case study material in a selective and directed manner. A significant proportion of responses focused on difficulties and did not give sufficient attention to attempts. It was also the case that many candidates wrote descriptions and explanations, or narratively, telling the story, without progressing to providing an assessment of success. Taking a descriptive approach to an evaluative question limits achievement to Level 1 (0–6 marks).

Question 2

Fig. 1, the resource for part **(a)** was a stimulus to get candidates thinking about industrial location. Part **(b)** drew on the case study from syllabus **section 1.4 The management of industrial change**, and so mirrored **Question 1(b)**.

- (a)** Fig. 1 showed an artist's impression of an industrial park to be built and led into a question on the advantages for industry of locating in such a purpose-built area. Candidates were free to answer on any kind of purpose-built zones, not just what looked like a hi-tech or R&D-type park in the figure. Effective responses developed a number of potential advantages; such as financial incentives, buildings ready to occupy, assured supply of water and electricity and accessibility; and combined these with some exemplar support, although this was not necessary for every advantage given.
- (b)** Prepared candidates deployed their case studies appropriately. Issues which have affected manufacturing industry in Zimbabwe in recent years, such as power shortages and hyperinflation, were often covered well. Answer quality could have been enhanced in two main ways: firstly, by the inclusion of supportive detail about manufacturing (e.g. named locations, events, named businesses or statistical data); and, secondly, by thorough assessment. As in **Question 1(b)**, a narrative or explanatory approach was limited in the credit it could achieve, and some assessment was perfunctory of the "this worked" sort. It was creditable to point out that some attempts were

sufficiently recent to be hard to assess effectively or that circumstances change in both national and global economies and that relative success, or relative failure, may change with them.

Environmental management

Question 3, on energy, was the more frequently chosen of the two questions.

Question 3

Many candidates responded effectively to this question, demonstrating data skills in **(a)(i)**, the ability to reason in **(a)(ii)** and the careful application of a case study in **(b)**. Keys to success were the robust interpretation of 'trends' in **(a)(i)** as changes over time and, in **(b)**, responding at the correct scale. This meant identifying a scheme, such as a named coal-fired power station or HEP project, rather than a national energy strategy, or a thematic approach, such as "wind in Germany".

- (a) (i)** Answers that scored highly covered all three countries in Fig. 2, a number of sources of renewable energy (perhaps not all), offered accurate data support and were comparative between the years to clarify trends. The data was relative so actual total energy production was not known. Most candidates read the values on the vertical scale on Fig. 2 appropriately, as they were stacked one on top of the other. For example, Brazil in 2008 used approximately 4% biomass (the brown section) not 84% (as it was sitting on top of 80% hydro). At the lower end, candidates tended only to pick out the highs and the lows, or to produce a static description, rather than one of 'trends', i.e. changes over time.
- (ii)** This was answered well and produced no problems. Any two reasons were credited. The two most frequently offered reasons were that non-renewable energy sources are depleting and that alternatives have to be found and growing global concerns over the environmental impacts of burning fossil fuels in terms of greenhouse gas emissions and global warming. To achieve the full 4 marks it was important to develop the point a little, rather than simply to state the reason. This could be done in a couple of sentences and did not require the paragraph(s) that some offered. Given the modest mark allocation, time was better spent in answering **(b)**.
- (b)** This was another place where selecting the right scale was fundamental to success. The syllabus contains both a named located scheme, such as a power station, e.g. Koeberg, South Africa, or HEP scheme such as Kariba, Zimbabwe and a national energy strategy covering all the ways that a single country such as Kenya produces electricity. This question required the 'named located scheme' and taking a national strategy scored a maximum of 8/15 marks. Many effective answers were seen, for example on the Three Gorges Dam in China, which is well-represented in the literature. Taking a thematic approach, such as 'wind in Germany' or 'geothermal power in Iceland' did not work well as, although each was located, neither was a single named scheme. Descriptive approaches received modest rewards. Higher order responses were evaluative and multi-dimensional, considering success in different ways, for example in terms of energy generation (amount, flexibility); how cost-effective the scheme was or its impacts on local people, perhaps involving compulsory relocation or providing power to homes which improved quality of life and attainment in education. Some candidates were rewarded for establishing immediate and later outcomes in terms of relative success or relative failure, such as when HEP turbines were not properly maintained and ceased to function, or dams began to silt up.

Question 4

Part **(a)** required candidates to think through this unfamiliar issue and to generate their own explanations. Part **(b)** was a more familiar evaluative demand and candidates were free to adopt any position if it was argued and evidenced.

- (a)** Effective answers stayed focused on land degradation (ignoring air pollution and water pollution) and offered a number of reasons with examples. Preventative measures against deforestation, such as financial penalties, was one idea, as was the positively remedial afforestation (the planting of replacement trees) with the associated beneficial effects on soil cover and quality and the hydrological cycle. Another popular explanation was education for local people about the environment they inhabit and the consequences of actions from waste disposal to agricultural practices such as streambank cultivation. Many candidates explained how the law can be used to protect land from degradation, for example in relation to mining companies or those seeking short-term economic gains. It was important to use examples, general responses receiving a maximum

of 6 marks. At the lower end, lists of simple ideas replaced developed explanations based on actual places, activities or events.

- (b)** This open question allowed candidates to assume any position and to present their view. Given the fundamental importance of finance, and, in LEDCs in particular difficulties in ensuring the delivery of finance for environmental projects, many agreed that economic constraints matter most. These could be interpreted freely, from the effects of indebtedness to those of inflation, from corruption amongst politicians or other stakeholders, to profit motivation overcoming wise decisions about that which is environmentally sustainable. Some candidates took and argued the viewpoint that other factors, such as co-operation amongst all people involved, or political stability, matter at least as much if not more than economic constraints. In such case good use was made of local circumstances to support and illustrate the argument. As with the assessment of other parts **(b)**, when an unsupported viewpoint or opinion was offered, an award was made within Level 1 (0–6 marks).

Global interdependence

The question on tourism, **Question 6**, was the most popular question on this paper.

Question 5

Some prepared candidates answered this satisfactorily. Few had the material to respond to **(b)** effectively given the conceptual demand which involved both global inequalities and historical factors.

- (a)** As with other parts **(a)**, for example to **Questions 1** and **4**, effective answers built up a number of developed reasoned ‘ways’ using examples. A list of these ways is detailed in the published mark scheme to help guide teachers delivering this topic, which was only introduced in the syllabus revision for 2010. Some good work was seen on the effects of hyperinflation, on the international debt crisis linked to the price of oil, and to financial mismanagement and/or corruption. Catastrophe affecting harvests, making projects fail, or requiring massive borrowing with little prospect of loan repayment, was also seen as contributory.
- (b)** Many candidates did well to recognise that an imperial or colonial past, and the relationship between coloniser and colonised, MEDC/LEDC, was a potentially rich area to explore as an historical factor. That of trade agreements and the way they operate was also used. Some did well to tease out other factors that contribute to global inequalities of which resource endowment, especially in relation to key minerals such as oil, or key products and services such as tourism, was particularly useful. As with other evaluative questions using the phrase ‘To what extent..?’ candidates were free to take and develop any position, using the understanding and evidence they had. Understanding of the unequal character of flows in global trade could be improved (scale, direction, nature of products and services, etc.).

Question 6

It is possible to identify one way in which candidate performance could be enhanced on each of the elements of this question. In **(a)(i)** comment on both space (the rows) and time (the columns) was needed, with the accurate use of data. For **(ii)**, focussing on growth and making the link to Table 1 were vital. For **(b)** it was not sufficient to describe problems, which many did, or to outline responses, which some did. Answer success depended on the evaluation of those responses.

- (a)(i)** It was important to process the data provided, rather than simply rewriting the contents of the table in words. To do this, rates of change could be used or comparisons made between world regions and/or dates in terms of levels of tourist receipts. It was important to recognise that this was money, not people (tourists) and to use the correct units (US\$ millions). Answers on the highest and the lowest, Europe and Africa, were insufficient and usually achieved 2/5 marks.
- (ii)** High-scoring responses developed a number of reasons drawn from demand, supply and facilitating factors and linked these to one or more world regions in Table 1, usually through examples from individual countries. Many recognised the significance of the increase in affluence and ability to pay (demand), government investment in the development of tourism (supply) and the role of media and promotion (facilitation). A number of superficial answers were seen or those which lacked the development of ideas to achieve all the marks available.

- (b) A flexible approach to what constitutes a tourist area or resort was taken and worked well. If candidates took more than one location, Examiners assessed each and credited the better or best. Much satisfactory and good work was seen on problems arising from the growth of tourism (economic, social, cultural, environmental, political). Many included concepts such as the breach of carrying capacity or Doxey's Irridex, the irritation caused to locals by the increase in numbers of tourists. It was good to see resource issues included, such as conflicts over water supply, power, access to beaches or impairment of fish stocks. Coverage of responses to these problems was limited and in many cases not found at all. In these cases evaluation was, therefore, necessarily limited or impossible and so answer quality was reduced significantly. Some candidates knew that a response or responses had been made, such as increased police patrols to fight crime, or better waste disposal services to overcome littering and the build-up of rubbish, but it was rare to find any robust evaluation of whether these worked or not. Examiners concluded that candidates seemed not to have this level of detailed knowledge of the outcomes, rather than not to be drawing on it here. Using the life cycle model of tourism as the basis of a response was difficult to do well. This is one instance where material, even if learned in detail and recalled accurately, if not relevant to the question, is better left out. The time taken to draw and/or describe the model and its application would be better spent in developing a focused and direct response to the actual question set.

Economic transition

A comparatively small number of responses were seen to both questions in this Option.

Question 7

Some responses, by prepared candidates, were very good indeed.

- (a) This part-question offered candidates a natural structure for their responses and some guidance as to what to do. Effective answers were balanced between the primary sector (extractive industries) and the secondary sector (manufacturing and processing) and used examples as instructed. As with other parts (a) general responses were limited to a maximum of 6/10 marks. The sectors' roles in economic development could be approached in different ways. Most candidates outlined how the primary sector produces raw materials, such as non-renewable resources, and how the secondary sector uses them, adding value. Some mentioned government policy and priorities in their economic planning, for example moving from import-substitution to export-orientated manufacture over time. Some referred to a model, such as Rostow or the Clark-Fisher model of sector development, to help show change in the two sectors over time.
- (b) This was a classic question inviting coverage of single criterion and multiple criteria indices. It was important to address both social and economic wellbeing. Possible economic measures included GNP per person and the possibility of its adjustment for purchasing power parity (PPP) globally. Social measures included demographic ones, such as life expectancy or infant mortality, and other measures such as literacy rate or gender empowerment. Weaker responses tended to describe social and economic inequalities and what they look like in a population, rather than to focus on possible measures and their measurement. Most responses included at least one multiple criteria measure of which the human development index (HDI) remains the best known and understood. Higher order answers often contained content to show some of the associated difficulties of measuring inequalities globally, such as a lack of data, difficulties in obtaining comparable data or of political influence over data.

Question 8

The issue of how regional disparities within a country change over time is a classic one. In this two part question, a theoretical part (a), using a resource, was followed by a case study-based evaluation.

- (a) The idealised graph in Fig. 3 was interpreted well by most candidates in terms of the shape and the dynamic. Expression and vocabulary were not strong in some work, although credit was given for the spatial relationships identified. Many descriptions would have benefited from knowledge and use of the terms *divergence* and *convergence*. Most reasoning was developed within the classic framework of initial advantages, cumulative causation and core-periphery theory. Some mentioned government intervention. It was rare to see in the explanation whether full convergence and regional equality, to the right side of the diagram, is ever achieved.

- (b)** This subject area appears from time to time and, although, wording differs, requires the use of a detailed case study with knowledge of attempts to reduce regional disparities and evaluation of the outcomes. Cases used for this included Brazil and Zimbabwe. Most used a single case. Using more than one allowed a variety of initiatives and results to be considered. It also required careful handling so that too much time was not spent on introducing the example and writing descriptive background. As with all parts **(b)**, case detail and the depth and extent of the evaluation made differentiated outcomes.

GEOGRAPHY

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Key messages

- Geography is multi-dimensional and, at this level, it is important to be able to identify factors and develop reasoning in more than one dimension (economic, social, environmental and political).
- Using examples is key to achieving higher marks, both in parts **(a)** and in parts **(b)** where often a developed and detailed case study is the heart of an effective response.
- Evaluative skills, evaluative language and an evaluative structure for extended writing are fundamental to success in parts **(b)** of questions.

General comments

The pattern of recent years was repeated with the popularity of the Options being observed in the following order: *Global interdependence*; *Environmental management*; *Production, location and change*; *Economic transition*.

The resources contained in the Insert were varied (an artist's impression, divided bar charts, a table and a graph) and interpreted satisfactorily by most candidates. Most recognised that Fig. 1 was a light industrial park, science park or business park setting. In Fig. 2 most candidates read the values on the vertical scale appropriately given that they were stacked one on top of the other. For example, Brazil in 2008 used approximately 4% biomass (the brown section) not 84% (as it was sitting on top of 80% hydro). In writing about Table 1 it was important to recognise that the tourist receipts were financial (money) not numbers of tourists. It also mattered to include the units (US\$ millions) and not just the numerical values from the table, e.g. "8500". Fig. 3 was satisfactorily understood and some expressed the observed divergence (the upward limb) occurring before regional convergence (the downward limb) well, using simple vocabulary. Teachers are reminded to ensure that throughout the course a variety of styles of resources should be used in teaching and learning in order to develop subject skills (Assessment Objective 3). The use of past papers for this is to be encouraged as it gives a good indication of the likely demand at A Level (and AS for the Paper 1 variants) as well as the kinds of questions that are likely to be asked.

Many candidates used subject vocabulary and technical terms effectively in their writing and received credit for doing so. One approach to teaching and learning would be for candidates to develop their own dictionaries of terms during the course which could then be used in revision and preparation for the examination. The dictionary could be of A to Z format, but might be more useful if arranged per Option. So for example, for *Production, location and change*, early entries might be *agglomeration* and *agricultural productivity* under A and, a later one, *technology* under T. The dictionary could be built up to ensure that all the terms in the syllabus were known and understood, and terms found in past papers also. This examination, the term that were interpreted least well was *constraint* in **Question 4(b)**. A constraint is understood to be something which restricts, limits or holds back an activity or a process, which constrains it. This question was about economic constraints on improving degraded environments, the most obvious of which is a lack of finance to fund a scheme or project.

Candidate performance could be further enhanced by the development of an understanding of scale (Assessment Objective 2.4), especially spatial scale. In geography scale matters and ranges from global, through international, that of world regions and/or continents, to national, regional (within a country) and local. It may also include groups of people and the individual. There were two places where scale was especially important this session. One was **Question 1(b)** which required an agricultural holding, producer or system. The other was **Question 3(b)** which asked for a 'named located scheme', such as a power station or HEP dam, not the overall national energy strategy which is also listed in the syllabus. Examiners were flexible when assessing **Question 6(b)** as to what was taken as the 'tourist area or resort'. Many candidates selected a resort town such as Victoria Falls, or a beach area or coastline such as the Costa del

Sol in Spain, or an island, such as Zanzibar. Others, with a global perspective, took the country of Spain or the country of Kenya as a tourist area, which was fully acceptable.

A few rubric errors were seen, always where candidates attempted more than the two questions from two different Options. The rubric on the question paper cover is clear and so this is avoidable.

Comments on specific questions

Production, location and change

Many more responses were seen to **Question 1** than to **Question 2**.

Question 1

The question consisted of two different kinds of demands. Part **(a)** required candidates to think through and develop their own answer in the given context. Part **(b)** involved the use of the case study from syllabus **section 1.2 The management of agricultural change**.

- (a)** There were three elements to making an effective response. The first was to interpret the stem correctly and to identify the appropriate context, i.e. that of food which 'is lost after harvest and never gets eaten or sold'. This meant, for example, that keeping seed to plant another year was not relevant, but that accidental spillage of seed was. The second was to develop a number of different ways in which such losses occur; e.g. rodents, rotting, the impact of severe weather, accidents during transport, or theft. Comprehensive answers were not required, but evidence was needed of a number of reasons. The third was to integrate exemplar support, e.g. of specific crops, events or from particular farms, as general responses were restricted to the usual maximum in parts **(a)** of 6/10 marks.
- (b)** This open question about agricultural production required candidates to structure the response themselves. Clues as to how to do this could be taken from the question, from the key words 'difficulties' and 'attempts' and the command 'assess'. Scale mattered, as made clear in the question, so, for example, answers on the European Union's Common Agricultural Policy or on more than one agricultural system were unsuitable. Some high quality evaluative work was seen, for example in relation to the introduction of the Green Revolution in India, or to improving agriculture in Zimbabwe, using case study material in a selective and directed manner. A significant proportion of responses focused on difficulties and did not give sufficient attention to attempts. It was also the case that many candidates wrote descriptions and explanations, or narratively, telling the story, without progressing to providing an assessment of success. Taking a descriptive approach to an evaluative question limits achievement to Level 1 (0–6 marks).

Question 2

Fig. 1, the resource for part **(a)** was a stimulus to get candidates thinking about industrial location. Part **(b)** drew on the case study from syllabus **section 1.4 The management of industrial change**, and so mirrored **Question 1(b)**.

- (a)** Fig. 1 showed an artist's impression of an industrial park to be built and led into a question on the advantages for industry of locating in such a purpose-built area. Candidates were free to answer on any kind of purpose-built zones, not just what looked like a hi-tech or R&D-type park in the figure. Effective responses developed a number of potential advantages; such as financial incentives, buildings ready to occupy, assured supply of water and electricity and accessibility; and combined these with some exemplar support, although this was not necessary for every advantage given.

- (b) Prepared candidates deployed their case studies appropriately. Issues which have affected manufacturing industry in Zimbabwe in recent years, such as power shortages and hyperinflation, were often covered well. Answer quality could have been enhanced in two main ways: firstly, by the inclusion of supportive detail about manufacturing (e.g. named locations, events, named businesses or statistical data); and, secondly, by thorough assessment. As in **Question 1(b)**, a narrative or explanatory approach was limited in the credit it could achieve, and some assessment was perfunctory of the “this worked” sort. It was creditable to point out that some attempts were sufficiently recent to be hard to assess effectively or that circumstances change in both national and global economies and that relative success, or relative failure, may change with them.

Environmental management

Question 3, on energy, was the more frequently chosen of the two questions.

Question 3

Many candidates responded effectively to this question, demonstrating data skills in **(a)(i)**, the ability to reason in **(a)(ii)** and the careful application of a case study in **(b)**. Keys to success were the robust interpretation of ‘trends’ in **(a)(i)** as changes over time and, in **(b)**, responding at the correct scale. This meant identifying a scheme, such as a named coal-fired power station or HEP project, rather than a national energy strategy, or a thematic approach, such as “wind in Germany”.

- (a) (i) Answers that scored highly covered all three countries in Fig. 2, a number of sources of renewable energy (perhaps not all), offered accurate data support and were comparative between the years to clarify trends. The data was relative so actual total energy production was not known. Most candidates read the values on the vertical scale on Fig. 2 appropriately, as they were stacked one on top of the other. For example, Brazil in 2008 used approximately 4% biomass (the brown section) not 84% (as it was sitting on top of 80% hydro). At the lower end, candidates tended only to pick out the highs and the lows, or to produce a static description, rather than one of ‘trends’, i.e. changes over time.
- (ii) This was answered well and produced no problems. Any two reasons were credited. The two most frequently offered reasons were that non-renewable energy sources are depleting and that alternatives have to be found and growing global concerns over the environmental impacts of burning fossil fuels in terms of greenhouse gas emissions and global warming. To achieve the full 4 marks it was important to develop the point a little, rather than simply to state the reason. This could be done in a couple of sentences and did not require the paragraph(s) that some offered. Given the modest mark allocation, time was better spent in answering **(b)**.
- (b) This was another place where selecting the right scale was fundamental to success. The syllabus contains both a named located scheme, such as a power station, e.g. Koeberg, South Africa, or HEP scheme such as Kariba, Zimbabwe and a national energy strategy covering all the ways that a single country such as Kenya produces electricity. This question required the ‘named located scheme’ and taking a national strategy scored a maximum of 8/15 marks. Many effective answers were seen, for example on the Three Gorges Dam in China, which is well-represented in the literature. Taking a thematic approach, such as ‘wind in Germany’ or ‘geothermal power in Iceland’ did not work well as, although each was located, neither was a single named scheme. Descriptive approaches received modest rewards. Higher order responses were evaluative and multi-dimensional, considering success in different ways, for example in terms of energy generation (amount, flexibility); how cost-effective the scheme was or its impacts on local people, perhaps involving compulsory relocation or providing power to homes which improved quality of life and attainment in education. Some candidates were rewarded for establishing immediate and later outcomes in terms of relative success or relative failure, such as when HEP turbines were not properly maintained and ceased to function, or dams began to silt up.

Question 4

Part **(a)** required candidates to think through this unfamiliar issue and to generate their own explanations. Part **(b)** was a more familiar evaluative demand and candidates were free to adopt any position if it was argued and evidenced.

- (a)** Effective answers stayed focused on land degradation (ignoring air pollution and water pollution) and offered a number of reasons with examples. Preventative measures against deforestation, such as financial penalties, was one idea, as was the positively remedial afforestation (the planting of replacement trees) with the associated beneficial effects on soil cover and quality and the hydrological cycle. Another popular explanation was education for local people about the environment they inhabit and the consequences of actions from waste disposal to agricultural practices such as streambank cultivation. Many candidates explained how the law can be used to protect land from degradation, for example in relation to mining companies or those seeking short-term economic gains. It was important to use examples, general responses receiving a maximum of 6 marks. At the lower end, lists of simple ideas replaced developed explanations based on actual places, activities or events.
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Global interdependence

The question on tourism, **Question 6**, was the most popular question on this paper.

Question 5

Some prepared candidates answered this satisfactorily. Few had the material to respond to **(b)** effectively given the conceptual demand which involved both global inequalities and historical factors.

- (a)** As with other parts **(a)**, for example to **Questions 1** and **4**, effective answers built up a number of developed reasoned 'ways' using examples. A list of these ways is detailed in the published mark scheme to help guide teachers delivering this topic, which was only introduced in the syllabus revision for 2010. Some good work was seen on the effects of hyperinflation, on the international debt crisis linked to the price of oil, and to financial mismanagement and/or corruption. Catastrophe affecting harvests, making projects fail, or requiring massive borrowing with little prospect of loan repayment, was also seen as contributory.
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Question 6

It is possible to identify one way in which candidate performance could be enhanced on each of the elements of this question. In **(a)(i)** comment on both space (the rows) and time (the columns) was needed, with the accurate use of data. For **(ii)**, focussing on growth and making the link to Table 1 were vital. For **(b)** it was not sufficient to describe problems, which many did, or to outline responses, which some did. Answer success depended on the evaluation of those responses.

- (a) (i)** It was important to process the data provided, rather than simply rewriting the contents of the table in words. To do this, rates of change could be used or comparisons made between world regions and/or dates in terms of levels of tourist receipts. It was important to recognise that this was money, not people (tourists) and to use the correct units (US\$ millions). Answers on the highest and the lowest, Europe and Africa, were insufficient and usually achieved 2/5 marks.
- (ii)** High-scoring responses developed a number of reasons drawn from demand, supply and facilitating factors and linked these to one or more world regions in Table 1, usually through examples from individual countries. Many recognised the significance of the increase in affluence and ability to pay (demand), government investment in the development of tourism (supply) and the role of media and promotion (facilitation). A number of superficial answers were seen or those which lacked the development of ideas to achieve all the marks available.
- (b)** A flexible approach to what constitutes a tourist area or resort was taken and worked well. If candidates took more than one location, Examiners assessed each and credited the better or best. Much satisfactory and good work was seen on problems arising from the growth of tourism (economic, social, cultural, environmental, political). Many included concepts such as the breach of carrying capacity or Doxey's Irridex, the irritation caused to locals by the increase in numbers of tourists. It was good to see resource issues included, such as conflicts over water supply, power, access to beaches or impairment of fish stocks. Coverage of responses to these problems was limited and in many cases not found at all. In these cases evaluation was, therefore, necessarily limited or impossible and so answer quality was reduced significantly. Some candidates knew that a response or responses had been made, such as increased police patrols to fight crime, or better waste disposal services to overcome littering and the build-up of rubbish, but it was rare to find any robust evaluation of whether these worked or not. Examiners concluded that candidates seemed not to have this level of detailed knowledge of the outcomes, rather than not to be drawing on it here. Using the life cycle model of tourism as the basis of a response was difficult to do well. This is one instance where material, even if learned in detail and recalled accurately, if not relevant to the question, is better left out. The time taken to draw and/or describe the model and its application would be better spent in developing a focused and direct response to the actual question set.

Economic transition

A comparatively small number of responses were seen to both questions in this Option.

Question 7

Some responses, by prepared candidates, were very good indeed.

- (a)** This part-question offered candidates a natural structure for their responses and some guidance as to what to do. Effective answers were balanced between the primary sector (extractive industries) and the secondary sector (manufacturing and processing) and used examples as instructed. As with other parts **(a)** general responses were limited to a maximum of 6/10 marks. The sectors' roles in economic development could be approached in different ways. Most candidates outlined how the primary sector produces raw materials, such as non-renewable resources, and how the secondary sector uses them, adding value. Some mentioned government policy and priorities in their economic planning, for example moving from import-substitution to export-orientated manufacture over time. Some referred to a model, such as Rostow or the Clark-Fisher model of sector development, to help show change in the two sectors over time.

- (b) This was a classic question inviting coverage of single criterion and multiple criteria indices. It was important to address both social and economic wellbeing. Possible economic measures included GNP per person and the possibility of its adjustment for purchasing power parity (PPP) globally. Social measures included demographic ones, such as life expectancy or infant mortality, and other measures such as literacy rate or gender empowerment. Weaker responses tended to describe social and economic inequalities and what they look like in a population, rather than to focus on possible measures and their measurement. Most responses included at least one multiple criteria measure of which the human development index (HDI) remains the best known and understood. Higher order answers often contained content to show some of the associated difficulties of measuring inequalities globally, such as a lack of data, difficulties in obtaining comparable data or of political influence over data.

Question 8

The issue of how regional disparities within a country change over time is a classic one. In this two part question, a theoretical part (a), using a resource, was followed by a case study-based evaluation.

- (a) The idealised graph in Fig. 3 was interpreted well by most candidates in terms of the shape and the dynamic. Expression and vocabulary were not strong in some work, although credit was given for the spatial relationships identified. Many descriptions would have benefited from knowledge and use of the terms *divergence* and *convergence*. Most reasoning was developed within the classic framework of initial advantages, cumulative causation and core-periphery theory. Some mentioned government intervention. It was rare to see in the explanation whether full convergence and regional equality, to the right side of the diagram, is ever achieved.
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Key messages

- Command words give good guidance as to what to do and mark allocations indicate how long a response to develop.
- Spatial scale matters in geography and it is important to respond to questions at the appropriate scale.
- Evaluative skills, evaluative language and an evaluative structure for extended writing are fundamental to success in parts **(b)** of questions.

General comments

Although responses were seen to all eight questions, answers to **Question 3** on energy and **Question 5** on tourism dominated the entry this examination session more than is usually the case. The two Options from which they were taken, *Environmental management* and *Global interdependence* remained the more popular across the entry as a whole. Few Centres delivered *Production, location and change*; rather more Centres prepared candidates for *Economic transition* as an Option.

In terms of the subject vocabulary used in the question paper, the terms that were the least confidently interpreted successfully both related to manufacturing industry: *diseconomies* in **Question 2(a)(ii)** and *deindustrialisation* in **Question 7(a)**.

Examiners assess responses for content, rather than for length. Responses varied in length greatly from a few lines to 2 sides or more for parts **(a)** and from a paragraph to 4 sides or more for parts **(b)**. It was noticeable that many responses were simply too brief to be able to achieve more than basic marks (i.e. 1–4 marks in **(a)** and 1–6 marks in **(b)**). A descriptor in the mark scheme ensures that fragmentary and note-form responses remain in Level 1 in parts **(b)**. Candidates are encouraged to develop their responses, especially by explaining what they mean, rather than simply stating an idea, and, in parts **(b)** by providing an evaluative response, not one that is simply narrative or explanatory.

Comments on specific questions

Production, location and change

In this least popular Option, more responses were seen to **Question 1** than to **Question 2**.

Question 1

It was important to recognise that although part **(a)** was about agriculture (the primary sector), part **(b)** asked about manufacturing industry (the secondary sector).

- (a)** Effective responses were reasonably balanced between advantages and disadvantages and provided examples as the question required. The term *agricultural technology* was interpreted broadly to include machinery, other equipment, irrigation technology and biotechnology, e.g. genetically modified (GM) crops. Some only wrote about machinery. Good responses could be based on a restricted interpretation of technology, for example the introduction of tractors to farms during the Green Revolution, as long as the advantages and disadvantages were developed in depth and detail. Compare, for example, the basic observation “machines save time and money” with the more developed, “introducing harvesting machinery, such as combine harvesters or tractors, saves time and increases efficiency. This may be important if the crop is perishable or if

the weather is changeable. Less permanent farm workers need to be employed and seasonal labour may no longer be needed, so cutting the farmer's costs."

- (b) Most recognised the shift from agriculture to manufacturing. If a candidate wrote about government influence on agriculture mistakenly, generic credit was awarded within Level 1. Generic credit means that credit is given to points that would have been pertinent or true if the correct context had been taken (in this case, manufacturing). Some use was made of government influence on location through industrial estates and export processing zones (EPZs), although productivity was the more demanding aspect in this case. It is generally the case that simple recall of a learned example, such as that of the UK iron and steel industry, will receive modest credit unless there is careful selection of material and its clear direction and application to the question set. As the syllabus has a dateline of 1970, a contemporary approach has greater potential.

Question 2

The question combined a theoretical and conceptual part (a), with the opportunity to use the case study from section 1.4 in the syllabus in (b).

- (a) Most candidates achieved marks more readily for (i) than for (ii). In (i) the classic cases of a resource location or a transport location could be taken or industrial estates and EPZs. Many recognised that 'concentration' could be interpreted as agglomeration and wrote of linkages, agglomeration economies, etc. For (ii) it was the economic disadvantages (or costs) of concentration that were needed, such as competition for labour, shortage of land for expansion or overstretched infrastructure (energy, water, transport). Two such diseconomies described and developed well could achieve the full 5 marks.
- (b) Better quality responses were distinguished by two things. Firstly, they were based on a clear 'industrial change' (or changes) in manufacturing, that could often be dated and which were put in a named, located, context. Secondly, there was description and explanation of both 'causes' and 'consequences' in a reasonably balanced manner. Some showed a sequence in which consequences of one change in manufacturing became causes of the next. Examples varied, but China was one case study from which the global context of change in manufacturing could be brought out well.

Environmental management

Question 3, on energy, was the more frequently chosen of the two questions. Some very good responses to Question 4 were seen in which candidates' environmental awareness was impressive and wild land valued highly.

Question 3

- (a) The question required candidates to think through the decision-making of an LEDC government in relation to one decision about energy production, using their background knowledge and understanding of the relative advantages and disadvantages of HEP and coal (thermal power) to generate electricity. Considerations of the nature of the two sources, often covered separately, were the main part of most responses of pass to moderate quality. Higher-scoring reasoning tended to be comparative throughout and so demonstrated skills in weighing and judging. Some included argument and counter-argument. They also included one or more higher order reasons, such as the country's energy security, the idea of "future-proofing", or the potential of income-generation by exporting coal whilst meeting rising domestic energy demand from non-polluting HEP. A distinctive LEDC perspective enhanced some writing. In assessing this part-question it was acknowledged that general explanations were fully justifiable and so the usual maximum for a general response without examples, (6/10), did not apply.
- (b) The question was written long before the Fukushima nuclear disaster in Japan in March 2011, but that incident and contemporary comment on and appraisal of its impacts featured creditably in many responses. Questions which begin with 'How far do you agree ...' allow candidates to adopt any position on the issue, as long as they can argue for their view and provide evidence to support it. So, for example, Examiners accepted both a 'nuclear power, no thanks' assessment, in which risks were expounded as too many and too great, as well as essays which explained that risks could be managed and that the nuclear option is the only viable way to meet rising global energy demand easily without contributing to global warming. Most responses were dominated by the risk

of catastrophic accidents such as at Chernobyl (1986) or Fukushima. More rounded responses also covered the risks involved in the secure and safe transport of nuclear fuels and/or the disposal of radioactive wastes. One good feature of responses was the attempt to explain what 'the uncertain world of the 21st century' might be in relation to nuclear power. The threat of terrorism was one such key idea; less technologically competent countries or politically unstable regimes experimenting with nuclear power, was another.

Question 4

Fig. 2 was stimulus material to provoke thought, especially about the small proportion of wild land remaining in the UK. There was, however, no need to refer to the map when answering **(a)**.

- (a)** Candidates recognised the importance of unspoilt environments and wilderness suitably. The best responses developed an explanation of why they should be protected in a number of dimensions. For example, wild land has economic significance, such as for tourism in relation to national parks or protected coasts. It has social significance in terms of recreation and personal wellbeing, both aesthetic value and in terms of access. Wild land has cultural significance to native keepers and resident communities. Some good responses were developed in relation to a particular type of wild land, such as rainforest for its biological diversity and potential for drug discovery. Others referred to a number of environments focussing more on the concept of environmental protection than of wild land. In writing about protecting environments, it is always helpful to see risks, threats or pressures identified. For example, in relation to coral from dynamite fishing or tourist souvenir hunting for coral, or mining companies seeking to maximise profits in mineral-rich locations.
- (b)** The key to success here was the effective deployment of the case study from syllabus **section 2.4**. Candidates who had accurate and detailed recall knowledge, understanding of environmental quality as a concept and skills in assessment performed well to very well indeed. There was no restriction on the nature or the scale of the 'named located degraded environment', but teachers should be aware that micro-scale examples, such as that of a pond (a small water body), and large or global examples, such as "the atmospheric environment" or oceans, do not perform as well as those of moderate or medium size. These middle size examples allow some variety of attempts and outcomes usefully, but remain manageable for candidates to learn and to handle under examination conditions. Sharper and more pertinent responses resulted when candidates selected the material well and directed it to the question set this session. For example, no credit was available this time for background work on why the chosen environment had become degraded, and yet many candidates included these reasons. One indicator of answer quality was the ability to treat 'effectiveness' in different ways and to provide some evidence or data support, for example in relation to a river, this might be the improvement in one or more measures of water quality, or in numbers of fish or fish species observed.

Global interdependence

As in other examination sessions, the question on tourism, **Question 5**, was the most popular question on the paper. This was the case even though many candidates seemed not to have sufficient knowledge and understanding of ecotourism to satisfy **(a)**.

Question 5

Effective answers to **(a)** were dynamic, reflecting 'increasing popularity' and built up an explanation based on a number of different reasons. In **(b)** the key was to focus the assessment on 'quality of life' and what that means for local residents in tourist destinations.

- (a)** At the lower end of the mark range, answers tended to be more about the growth of tourism in general, rather than the growth of ecotourism specifically. As well as positive reasoning for ecotourism, such as because of media coverage and its effective promotion, it was also creditable to argue negatively. This could be, for example, in terms of the unattractiveness of more traditional forms of tourism, such as "sun, sand, and sea" mass tourism, or the deterioration of destinations, reflected in the later stages of the life cycle model, stimulating the desire for ecotourism. Some very good work was seen putting ecotourism in its contemporary context. To quote the start of one high level answer,

"The current trend of sustainability and environmentally-friendly is a major component to the booming eco-tourism industry. The perception of placing the environment before profits and the

relatively small numbers of tourists able to go to an ecotourist destination is an inviting option for affluent tourists.” One exceptional response included the idea that ecotourism “can be included in the movement towards consumer-conscience-centred products”.

- (b) The assessment provided depended to a large extent on the places or examples chosen. A response on one tourist destination could, as is usual for single example responses to plurals in questions, score up to a maximum of 10 marks. At this level it is, however, expected that candidates will be able to make some comment ‘on the other side’, even where balanced responses are unrealistic. So, for example, in an essay in which quality of life was presented as transformed for the better by work, observations such as the fact that although hundreds of jobs are created these may be low-skilled and menial, so not offering progression to workers, and seasonal, so not income-bearing all the year round. Some good work was seen on how environment contributes to quality of life, for example in terms of impact on water supply to local people, the availability of electricity 24/7, pollution from tourism, or access to beaches. Lower-scoring responses tended to be about the effects of tourism more generally, with less attention to quality of life of the local population. This is an example where close attention to the actual wording of the question could both save time and be turned to good credit.

Question 6

- (a) (i) Effective answers described the pattern of absolute data about overseas development aid (ODA) in Fig. 3A in relation to the relative data in Fig. 3B. For example, it shows that although the USA gave approximately US\$ 29 000 million in aid, this represented less than 0.2% of its national income. By contrast the countries of Scandinavia (Sweden, Norway and Denmark) gave the highest proportion of their national incomes (0.85 to 1.1% approx.) although this still represented a small percentage in each case. Better answers did more with the data than describe the highs and lows.
- (ii) There were many potentially right reasons here and no reserves such that any one reason had to be given to earn full marks. In giving aid, countries operate from a variety of motives: altruism and humanitarianism for example in relation to relief aid and some development work; self-interest, for example in relation to strategic decisions, often about tied aid or their own security; and historical reasons, such as when the former colonial power gives aid to one of its former colonies. This is a case where the marking approach was for simple ideas to be credited 1 mark, and developed or illustrated ideas given 2 marks.
- (b) The quote from Fredrik Erickson made for quite a long stem to the question, but provided better indication to candidates as to what they needed to do, than a more open question would. As with other questions that asked for a view or opinion, any position was creditable as long as it was argued appropriately and supported by evidence. Most tended to follow Erickson’s line by providing arguments about economic independence and engagement with the rest of the world through trade, and dependency and other problems associated with aid, which can be uncertain, readily corrupted, etc. Some relatively weak answers were seen which agreed with the given statement without providing material about countries’ development or investigating what trade and aid mean in practice. As is the case in the marking of all parts (b), these unsupported opinions achieved Level 1 awards.

Economic transition

This Option was chosen the least and few responses to these questions were seen in total. Some candidates were able to derive a few marks for **Question 8** by interpreting Fig. 4.

Question 7

- (a) The term *deindustrialisation* means the process of change in an economy that makes manufacturing decrease in importance and which shifts the economy from being dominated by manufacturing to being dominated by services. It is accompanied by changes in employment, the location of industry, land-use, etc. It occurs in MEDCs as part of *global shift*, the redrawing of the world economic map and the development of the global economy. In this, TNCs seek to maximise profits through global production networks and the comparative advantages of MEDCs, NICs and LEDCs. A few very high quality responses were seen.

- (b) This open question required candidates to develop their own structure and explanation why. A few did this very effectively by considering different constraints. Most found it a challenge to provide the level and detail of explanation needed, giving starter ideas only. “The issue of political stability is often an important issue that would both attract or prevent development” is one example of a starter idea which was not taken any further.

Question 8

The question was based on one classic model of regional development, that of core-periphery. The information in the question’s stem was vital for an effective response in two ways. Firstly, it identified the scale ‘within a country’ and, secondly, it specified the use of one or more examples.

- (a) Flows of labour (migrants) formed the main part of most answers. Some overlooked the other three elements given in the key to Fig. 4: capital, goods and commodities (e.g. energy or raw materials) and so limited the potential outcome.
- (b) The application of the model was better in relation to A, the growth core region, and D, the peripheral region. The other two regions tended to be left out of the assessments offered. The work needed to be at the correct scale and to show detailed knowledge of the chosen country. Some wrote generally using material from this subject area, for example, about cumulative causation. A few responses used the chosen case well, with Brazil, Brunei, Malaysia and Pakistan being used discerningly. Some demonstrated simple fit for each part of the model, the assessment of extent was less commonly achieved and so helped to differentiate outcomes.