CONTENTS

FOREWORD

This booklet contains reports written by Examiners on the work of candidates in certain papers. **Its contents are primarily for the information of the subject teachers concerned**.

GEOGRAPHY

GCE Advanced Level and GCE Advanced Subsidiary Level

Paper 9696/01
Core Geography

General comments

The examination elicited a wide variety of quality of response that was often specific to Centres. Examiners frequently found more variation between than within Centres. Some Centres, notably some from New Zealand, Zimbabwe, South Africa and Kenya, produced consistent and at times outstanding examination performances. These candidates demonstrated a good grasp of terminology and a sound understanding of geographical processes. Elsewhere, an inability to use appropriate terminology often hampered candidates' ability to successfully answer the descriptive parts of the data questions (***Section A***). This was particularly noticeable in **Questions 2 (a)** and **5 (a)** where many candidates failed to employ even simple features such as cardinal points or distinctions between sea and land masses in their descriptions.

Candidates have clearly been instructed to utilise the data given in ***Section A*** within their answers and there was some evidence to suggest that many are becoming adept in the selection and interpretation of relevant data. There are still a number of candidates, however, who are either careless and inaccurate in the data they select or regurgitate all of the data regardless of its relevance to the question. (**Questions 1 (b)** and **4 (b)**).

There was much less evidence in this examination of the wholesale omission of questions than has been evident in the past. Similarly, candidates generally appear to have handled the time more appropriately, in that there were fewer examples of candidates producing only a truncated response to their final question (usually **Questions 9** or **10**). In ***Sections B*** and ***C***, there remain a significant number of candidates who fail to apportion their time in line with the marks available. Thus, for example in **Question 6 (a)** a disproportionate amount of time was spent defining water balance (worth three marks) at the expense of part **(c)** worth ten marks.

The general standards of English usage and spelling remains high. Few candidates appeared to have been inhibited by any lack of understanding of English.

Comments on specific questions

Section A

Question 1

The most successfully answered of the physical geography questions.

(a) The vast majority of answers successfully identified sand and clay.

(b)(i) Most candidates identified the importance of velocity, although fewer were able to support this with accurate data. Most recognised that there is a difference between the nature of sand and clay but were often unable to express this in terms of cohesiveness.

(ii) A more disappointing response. Although most were able to recognise that larger sediments required greater velocities in order to be transported, this was often inaccurately demonstrated from the data. Deposition was less well described with many accounts suggesting that particular materials 'required' or 'needed' certain levels of velocity to be deposited. Many noted that clay and sand could be carried at very low velocities, but few were able to employ terms such as competence, entrainment or suspension within their explanation.

Question 2

The least well answered question in ***Section A***.

(a) Few were able to describe differences in isotherm patterns. The majority concentrated on maximum temperature values. Many appeared to lack the technical vocabulary to describe geographical patterns and resorted to 'flat' or 'wavy' isotherms located at the 'top' or 'bottom' of the map. Few referred to the latitudinal distortion of isotherms over land and sea or to the northward shift of isotherms.

(b) Few descriptions were seen of the distortion of isotherm pattern displayed on Fig. 2, between land and sea areas. Explanations of the different thermal capacities of land and sea were often limited to 'land heats up faster than the sea'. Some answers referred to diurnal (rather than seasonal) changes and some candidates couched their response solely in terms of land – sea breezes, ocean currents or even the influence of urban heat islands.

Question 3

Confidently answered by a number of candidates.

(a) Many candidates failed to interpret *range* of temperature and precipitation values and gave only maximum values.

(b) By failing to refer back to the diagram, some candidates selected inappropriate processes. Hence freeze thaw was selected as an example of a slow process despite the diagram showing that freezing temperatures were never approached. Generally the descriptions of freeze thaw (most commonly selected as a rapid process) were more successful than either salt crystallisation or thermal fracture (slow). There were examples of the good use of annotated diagrams or of succinct description that could be awarded full marks.

Question 4

The most successfully answered question in ***Section A***.

(a)(i) Argentina and Uruguay were usually successfully identified.

(ii) The range was usually identified correctly (2.4), although some candidates became involved in complex and erroneous calculations.

(iii) The factors indicated a broader understanding and were readily named by most candidates. Some needed a little more development such as 'education' or 'infant mortality' as education of women or falling mortality rate.

(b) Most answers were fair to very good. Candidates recognised that as the percentage of women in the work force rises, so fertility decreases. Most could support this with data from Fig. 4. Only few, however, spotted the complexity of the data set, or that Bolivia appears as an anomaly. Some candidates developed description of the data to the exclusion of the explanation that was required. The better explanations combined some of the factors such as the lack of time for child care, growth in materialism, improved education opportunities, rising costs of having children and women's emancipation, ambition and changing role in society.

Question 5

The treatment of Fig. 5 was disappointing in **(a)** but in **(b)** many candidates displayed an awareness of present urban structures.

(a) Very few candidates made the simple, but creditable observation, that residence was organised by income. Some lacked the locational analysis and/or vocabulary to describe aspects of a multiple nuclei model. Commonly, location of each residential area was merely expressed in terms of 'near' or 'far' from the CBD. Few noted the eastward extension, that there were three areas of low income residence or the extent of the area of medium income. Many answers devolved into irrelevant explanations of the location of each group.

(b) A much stronger response was evident. Both the CBD and the OBD were discussed by most candidates in terms of some, or all of, the following: price, space, competition, access and availability of labour. Only a simple contrast between congested and non-congested areas failed to record reasonable marks.

Section B

Question 6

A popular choice within this section, although parts **(b)** and **(c)** of the question were often disappointingly answered.

(a)(i) Most understood that intense rain is likely to lead to surface run off rather than infiltration. Few, however, were able to express this in terms of rainfall exceeding infiltration capacity. More assumed that intense rain inevitably leads to flooding. In this sense, duration was often confused with intensity. Terminology such as lag time and reference to storm hydrographs were rare.

(ii) Responses varied considerably between Centres. The better answers described water balance in terms of a simple equation, whilst weaker responses indulged in over long and often erroneous descriptions of inputs and outputs within the general hydrological cycle.

(b) Both the diagrams and the descriptions of landforms found in meandering channels were disappointing. Better answers were able to describe some element of a meander cross section and include helicoidal flow, pools and riffles within their explanation. Many answers concentrated on ox bow lakes with weak or non existent explanation. Weak answers were those that focused on levées, deltas and flood plains.

(c) Very few good answers were seen, as most concentrated upon the impact of dams on human activities in general rather than the catchment area itself. Few distinguished between the effects upon the catchment area above and below the dam. Some noted the increased levels of evaporation from the dammed water and its possible impact upon local climate. Only a handful of the better candidates framed their answers in terms of the impact upon catchment flows and stores.

Question 7

The least popular question that often yielded the weakest answers in this section.

(a)(i) Most could describe the urban heat island as an area of higher temperatures, although significant numbers of answers ascribed this solely to pollution.

(ii) Most answers could effectively describe increased levels of convection, hygroscopic nuclei and hence rainfall. Weaker answers attempted to extend erroneous accounts of the causes of heat islands or described increased amounts of fog.

(b)(i) Surprisingly large numbers of answers were unable to relate this to radiation heating of the Earth's surface. Many gave confused accounts of adiabatic cooling.

(ii) Whilst many could name temperature inversions, fewer could indicate what they were.

(c) Candidates tended to describe either cloud formation or the production of raindrops. Few combined the two elements in an effective account. For cloud formation, the majority attempted to describe the relationship between adiabatic and environmental lapse rates usually accompanied by reasonably accurate diagrams. Some reference was made to cooling and condensation although rainfall was often explained in terms of being too heavy for the cloud. Other candidates concentrated on well rehearsed accounts of raindrop formation with little reference to either condensation or cloud formation.

Question 8

Popular, but with very variable levels of response.

(a)(i) Good answers were clear about differences in density and composition of the tectonic plates. Weaker responses restricted the accounts to whether the plates were overlain by continents or oceans.

(ii) Despite some confusion between convergence and divergence, most answers opted for fold mountains or ocean trenches. Labelled diagrams were an obvious way to deal with this, but few showed more than subduction. The compression of sediments in fold mountains and crustal down warping in ocean trenches were rarely shown.

(b) Generally less well answered than **(a)**. At best, answers displayed a very simplistic appreciation of crustal divergence, which was reflected in the crude nature of the diagrams showing a pulling apart of crustal blocks and an infilling of magma. In some cases these erroneously included fold mountains and ocean trenches. Better diagrams included divergent processes (convection currents), mid ocean volcanoes, the production of new crust, transform faulting and striping.

(c) A disappointing response as many answers concentrated on the landforms found at plate margins without any reference to the nature of plate tectonics or its use as a global model. The better answers did at least associate the features they described with some of the processes occurring at plate margins, although this often led to some repetition. Weaker answers concentrated on Wegener's continental drift or were unspecific as to the significance or nature of plate tectonics.

Section C

Candidates divided themselves in roughly equal numbers between **Questions 9** and **10**. Virtually no answers were given to **Question 11**.

Question 9

Parts **(a)** and **(b)** were answered with some success, but many candidates found part **(c)** to be more demanding.

(a) Most candidates effectively described the operation of birth and death rates in stage 1 and were thus able to gain credit. The weakness of many answers when referring to this stage of the DTM is the assumption that many or even some LEDCs are still within this stage.

(b) The demand to draw and label the diagram generally elicited a good response. A few candidates supplied separate text which was only credited if there was a clear link made to the line drawn on the diagram. Many candidates inaccurately identified the line. For full marks, the total population line needed to show relative stability with slight fluctuations in Stages 1 and 4, concavity in Stage 2 and convexity in Stage 3. Labelling needed to get behind the natural increase rate to explain the changes in birth and death rates, for instance by the introduction of health care and improved food supply in Stage 2 or contraception in Stage 3. Weaker answers only outlined changes in BR and DR.

(c) There was a wide range of answer quality. Weaker responses missed or ignored the keywords *MEDCs* and *future* and gave a general description of the stages of the model. Good answers were those that produced a careful assessment of the limitations of the DTM as illustrated here both as a predicative tool and in application to the future of MEDCs. Some introduced and evaluated the possibility of a Stage 5 and touched on the realities and uncertainties of MEDC demographics due to ageing populations or a new pro-natalism.

Question 10

Popular and generally successfully answered.

(a) Most gained at least four marks and many achieved full marks. Candidates clearly distinguished between the two types of migration and were able to give appropriate examples. Involuntary migration was often less successfully described or exemplified. Only a few candidates erroneously included commuting.

(b) A range of answer quality was seen. Weaker answers dealt with examples of economic migration (clearly not forced). Better answers were those identifying migration in response to natural disasters or political or social imposition. The best of these were able to provide clear detail of who had moved, the sources and destinations, numbers involved and mode and date. Recent history such as genocide in Rwanda, hurricanes in the Caribbean, war in Afghanistan and land redistribution in Zimbabwe were employed as telling examples.

(c) A wide range of responses. Weaker answers were those that considered only pull factors with little realisation that, in most cases, both factors form part of the complex decision to migrate. The better answers were those that explained the many subtle but powerful push factors that operate in several dimensions i.e. social (e.g. family breakdown), economic (e.g. job loss), political (e.g. instability) and environmental (e.g. soil deterioration). The best answers demonstrated argument and evaluation and were supported by examples.

Question 11

So few answers as to invalidate any general comment. The following is a guide to what the question anticipated.

(a) Settlement hierarchy should display order of importance, size or function with a number of levels. This could be shown with a labelled diagram.

(b) Some kind of flow diagram was anticipated that displayed the interaction between two settlements. These could have been generic (e.g. relationships between a village and a market town) or real places that had been studied by the candidate. Relationships could be expressed in physical, economic, social or political dimensions.

(c) There would be an awareness of the nature of primacy and its association with LEDCs and early stages of urbanisation. Primacy, however, can also be associated with other situations including centralisation (e.g. France), countries of limited extent (e.g. Luxembourg) or centres of former Empires (e.g. Austria).

Paper 9696/02

Physical Options

General comments

The majority of candidates found the questions accessible and there were very few infringements of the rubric. The improved overall standard, commented upon last year, was maintained although there was the expected wide range of quality in the answers. Candidates organised their time effectively in that there was less evidence this year of answers to parts **(a)** being disproportionately longer than those to parts **(b)**. There was also less overlap between answers to the two parts, although this may have been attributable to the clearer differences in the demands of each part.

The ***Hazardous Environment*** was the single most popular option across the wide geographical distribution of Centres. The second choice of option often reflected the physical location of Centres and it was pleasing to read answers where candidates drew on their knowledge of 'local' examples and in many cases field work experience. Accurate detailing of a relevant example, which meets the specific demands of a question, will normally be well credited as often it reveals a deeper insight into a topic and real landforms are more valid than generalised and often inaccurately reproduced text book ones. Naturally there is no bonus credit for simply recording a field visit and too often candidates present a diary of where they went and what they saw rather than using the experience to add weight to answering the question. Similarly well worked case studies and examples from texts, the internet and other sources can be equally effective to support a line of argument or description and explanation. As stated on the front cover of the examination paper, candidates should make use of such examples even where not specified in the question, i.e. wherever it is felt that they can add weight to an answer or clarify a description or explanation.

As has been commented on for previous examinations, there were two areas to which candidates needed to pay particular attention. Firstly, they needed to spend time ensuring that they fully understand the specific requirement of a question; this usually entailed them being selective in drawing on their knowledge of a topic rather than a keenness to impress an Examiner with their breadth of knowledge. This first point was well demonstrated by many of the answers to **Question 6 (a)**, as detailed below. Secondly, many candidates were failing to make use of, and in some cases apparently ignored, the data provided for **Questions 2**, **4**, **6** and **8**.

Examiners were generally impressed by the standard of written English and most scripts were well presented with well drawn diagrams used relevantly in many answers.

Comments on specific questions

Tropical Environments

Question 1

This was generally the more popular of the two ***Tropical Environment*** option questions.

(a) There were a few instances where the term etchplanation was confused with either pediplanation or, in rarer cases, plantation agriculture. The majority of candidates did appreciate that it involved weathering and stripping of regolith under tropical climatic conditions. However, after some initial statement to that effect, too few were able to develop a balanced answer which included the processes of deep weathering and its geological control, i.e. rock type and structure, such as jointing, or how stripping was achieved. Similarly only the better candidates showed clearly how the characteristic landforms were developed in stages from the weathering and erosional processes. Most candidates drew diagrams which were helpful, but too few of these showed clearly such detail as the important role of jointing or of its absence. Some candidates devoted too much space, and therefore time, to detailing and illustrating all the varied landforms that they could call to mind but omitted to relate them effectively to etchplanation.

(b) A clear understanding of soils was a gap in many candidates knowledge which was evident in many answers to this question. Too many homed in immediately on clearance activities of the tropical rain forests and the effects of slash and burn. Better candidates showed that most tropical soils suffered intense leaching leading to the development of ferraltic soils with mineral deficiencies, they also appreciated that forest cover was essentially maintained by rapid nutrient cycling which was in some cases well illustrated by Gersmehl diagrams. Human activities were almost invariably their negative impact with little or no reference to increasing fertility from the use of fertilisers or good agricultural husbandry. Some candidates drew comparisons between the different tropical biomes and this was positively credited.

Question 2

In this question, as in **Question 1**, candidates were more comfortable writing about the human activities in tropical environments, especially tropical rain forests, in part **(b)** than to addressing the more precise demands of detailing the physical elements of parts **(a)**.

(a) Too few candidates could get beyond stating that the air masses were either warm and dry or warm and moist; very few explained that they were high pressure areas of large extent with uniform characteristics derived from their source areas. The explanation of how the passage of air masses can affect weather yielded a wide range of responses. Some candidates had a good understanding of convergence at the ITCZ, with resulting uplift and precipitation, together with the seasonal weather resulting from its movement.

The best answers made reference to atmospheric circulation and the significance of the Hadley cell, often accompanied by helpful diagrams. Other good candidates exemplified their answers with reference to areas experiencing monsoons. However, there were also many answers where the explanation of weather was woefully inadequate.

(b) A number of candidates detailed relevant case studies or examples where governments had implemented schemes to restore and manage areas of tropical rain forest or savanna. These gained appropriate credit but too often the link to sustainable management was not made and in some cases its meaning was not explained. As in **Question 1 (b)**, many candidates drew only on their knowledge of exploitation of tropical areas, with slash and burn cited as one type of sustainable management, as indigenous peoples left areas to recover as opposed to exploiters who merely destroyed forest for short term gain. The best candidates defined sustainable management and illustrated good practices where the nature of the ecosystem and the need to maintain nutrient levels were well understood.

Coastal Environments

Question 3

This question was by far the more popular in the ***Coastal Environment*** option and yielded the better quality answers.

(a) Most candidates recognised that waves were generated by wind, good ones elaborated by explaining frictional drag and the significance of wind strength, duration and fetch. Also, good answers had clear diagrams showing the orbital movement of water particles and how these were disturbed as a wave moved onshore into shallower water. Some candidates interpreted 'sea waves' only as waves at sea and omitted to consider their translation into constructive or destructive waves at the coast. There were answers where the candidates wrote at too great a length about destructive and constructive waves and their effect of beach profiles. Such impact of waves on the form of beaches was not strictly relevant and was often done at the expense of a proper consideration of the generation and characteristics of waves.

(b) The majority of candidates were able to identify the processes of hydraulic action, wave quarrying, abrasion and attrition, although these last two were not infrequently confused. A precise description of the processes was often less convincing and few offered anything on how effective different processes were and in what circumstances, e.g. on different rock types and structures.

The second demand of the question was generally less well answered, although there were some who made good use of examples and presented clear and detailed accounts of areas of coast that had been closely studied either in the field or from texts. However, the majority of candidates produced very generalised diagrams of the cave, arch, stack, stump sequence without reference to location at a headland or any geological control. Better answers concentrated on the major landforms of headlands and bays with reference to actual geology and not merely 'hard and soft rocks'. The best answers also detailed the formation of cliffs and their recession leading to the development of wave cut platforms.

Question 4

Because of the relatively few answers to this question, generalisations regarding performance must be tentative.

(a) Examiners gave credit for the attempts to relate one of the options, most commonly 'C' to an area of coast that candidates had studied, often it seemed from field observations, but rarely did the answers evaluate effectively its impact. Responses in past examinations to this area of the syllabus have also proved to be generally disappointing.

(b) From some of the answers it was doubted whether the precise meaning of the terms 'plan' and 'profile' were appreciated. Many answers focused on beaches affected by destructive and constructive waves; these were appropriately credited in connection to profile although the term itself rarely appeared. Better answers also included references to the nature of beach material and its significance, and to features such as berms and storm ridges, but only in profile. The plan form of beaches was often omitted from consideration and where attempted, the answers were less successful. Most commonly, longshore drift was used to explain the growth of spits and bars but rarely was there any appreciation of bay head or pocket beaches or of scalloped forms resulting from wave processes or groynes and any other features resulting from human intervention.

Hazardous Environments

Question 5

This was the less popular of the hazard questions but yielded the greater range of quality.

(a) There were some excellent responses to this with accurate descriptions of the generation, growth, form and size of tornadoes. The best knew about climatic conditions in the American south west; the meeting of air streams, the jet stream and the development of a high level inversion. Also that there were narrow spiralling winds which left a swathe of damage due to their high velocity as well as uplift and explosions due to the extreme low pressure at the centre of the vortex. However, there were many candidates who regarded tornadoes as synonymous with hurricanes and based their answers on their development with minimal credit only allowed for some references to relevant hazard conditions.

(b) In many cases there was no distinction made between the prediction of hurricanes and tornadoes, but better candidates recognised that tornado prediction posed special problems because of their small areal extent, rapid development and short duration. Most candidates were able to cite the use of satellites but few provided the fine detail of cloud patterns and the tracking of satellite images. Some candidates were aware of the sophisticated technology developed, especially by the United States, and made the appropriate distinction between the two types of storm.

In addressing the question of 'measures that can be taken to reduce the effects of tornadoes and tropical storms'; again most made little distinction and listed the need to provide strong shelters, to 'batten down', to provide effective early warning systems and contingencies for evacuation of coastal areas. Sensible differences were made between the economically developed countries and the less developed. Better candidates were aware of the special needs in the case of tornadoes; the value of local radio relaying information from tornado chasers, the use of cellars and of opening doors and windows rather than battening down.

Question 6

This was by far the most attempted question of the whole paper with the ***Hazardous Environment*** being the most popular optional choice of Centres.

(a) There were a variety of responses which illustrated well the need for candidates to read carefully the specific needs of a question. In this case the candidates needed to both describe and explain a pattern, the pattern being the global distribution of seismic risk and active volcanoes. Some answers were tectonic centred with little pattern and others pattern centred with little explanation. In too many cases it would seem that the world map provided was completely ignored and candidates wrote all that they could remember of anything to do with plate tectonics including details of ocean trenches, fold mountains and other features irrelevant to the question posed. With such a topic in which most candidates were well versed, the ability to be selective was so important. As ever there were many very good answers which achieved the right level of generalisation of the pattern and in which the influence of plate boundaries was both adequately detailed and accurate.

(b) Most candidates could write at length about the effects of earthquakes on people, buildings and infrastructures. Many covered well both the primary and secondary impacts. Differentiation was on the basis of those who used examples well, i.e. with accurate detailing of an event or events as opposed to those who wrote in general and often exaggerated terms. The best answers included two or more specific seismic events which offered contrasts together with references to related hazards such as tsunamis and slope failures.

A variety of techniques were advanced to predict seismic hazards, some realistic and others less so, such as exotic animal behaviour. What marked out the better answers were those with the finer detail, rather than simply 'the use of seismographs'. There was also confusion as to the significance of the Richter scale. The 'extent to which it is possible to predict' was hardly ever addressed. Many candidates went on to consider preventative measures such as building design, education and practice drills; these were irrelevant and could not be credited.

Arid and Semi-Arid Environments

Question 7

This was the more popular question in this option and generally the better answered.

(a) Many candidates were well versed in the causes of aridity in the tropical and sub tropical regions and were able, at varying levels of competence, to refer to the descending air in high pressure areas generated by the Hadley cell, the presence of off shore cold ocean currents and the effects of rain shadows or continentality. Differentiation was based on the accuracy of the explanation, coverage and the use of examples. Weaker answers were those where the candidates merely described desert climates, omitted a consideration of global distribution or gave a limited and imprecise explanation of the causes.

(b) For many candidates, this was an opportunity to write about any three desert features without due consideration as to whether weathering or erosion had played a part in their formation. Deflation, a transportation process, was only valid if accompanied by initial weathering to provide fine debris. Similarly many candidates elected to describe and explain dunes which are essentially depositional landforms. Ventifacts were adjudged by Examiners as being barely landforms and were awarded minimal credit. The better answers were focused on landforms such as wadis and pediments to illustrate water erosion, and zeugans, yardangs and pedestal rocks to demonstrate (mainly) wind erosion. In such good answers, weathering was shown as a combination of physical and chemical processes acting as a weakening agent as well as sculpting eroded landforms. Good candidates also made reference to past wetter climatic environments.

Question 8

Neither part of this less popular question yielded many answers of quality, although those to part **(b)** were generally better than those to part **(a)**.

(a) Too little reference was made to the given data in most instances. Only the few good answers revealed an understanding that the irregular rainfall, and particularly the below average of the past two decades, had combined with increasing human demand on resources to accelerate desertification. Too few candidates linked diminishing rainfall to water deficit and reduced vegetation. Human demands for grazing and collection of firewood for heating and cooking were generally better appreciated. The pattern of the stages of the spread of desert out from village centres, as shown in Fig. 4B, was rarely commented upon.

(b) Some candidates clearly did not appreciate the significance of the 'desert piedmont zone' and wrote about a selection of desert landforms which they felt might be appropriate. In some cases these were more acceptable than others and credit was awarded accordingly, e.g. dunes were frequently described and allowed for some minor credit as they can be found in some piedmont areas. However, most candidates relevantly provided a diagram illustrating the normal suite of landforms, i.e. the mountain front, wadi, knick, alluvial fans and bajada, pediment, peripediment and playa. These were then described and explained at varying levels of detail and accuracy. Examiners did not expect a complete coverage of the features listed above but rewarded well those who showed a realistic knowledge of the general morphology of the piedmont with an effective explanation of selected landforms. The very best candidates put forward theories of slope retreat and pediment formation and made reference to past pluvial conditions.

Paper 9696/03
Human Options

General comments

In this season's examination there was evidence that both Centres and candidates now have more of the measure of the 9696 Syllabus following its introduction. This was seen in a number of different ways: better time management with fewer brief, incomplete or curtailed scripts; development of data response skills; better selection and application of material to the question set with less irrelevance and improved assessments.

Across the four options and in all parts of the world, the main area for improvement remains that of giving and using appropriate exemplar support in answers. Many otherwise good answers remain general. This applies to part **(b)** of questions principally, but also within some parts **(a)**. Examples are needed 'even where such examples are not specifically requested by the question', to quote the instruction on the cover of the question paper. This lack of exemplar support restricts the potential credit awarded considerably. To illustrate this, in response to **Question 13 (b)** on global inequalities in trade flows, general answers were placed in Level 1 achieving up to 6/15 marks, whilst those that simply took an MEDC/LEDC contrast were limited to a maximum of 10/15 marks in Level 2. To achieve higher awards candidates needed to be able to refer to specific countries and/or trading blocs by name or to consider a third grouping of nations, rather than simply MEDCs and LEDCs, such as NICs or OPEC.

Suitable examples may be found both in text books and other printed materials and, in some cases, from a geographical reflection on everyday life in the candidates' home country or environment. It is perhaps worth pointing out that not only is there no expectation that candidates will study examples from the UK but that they may do better to use local material which is more accessible and with which they may be more familiar.

Across the four options, the two more popular with candidates this season were again *Environmental management*, comprising **Question 11** on energy and **Question 12** on water and its pollution, and *Global interdependence*, comprising **Question 13** on trade and **Question 14** on tourism. Teachers are advised to prepare candidates fully for each option, both in order to give the candidates a choice of questions and to allow for future questions which may straddle the option themes, such as on the subject of location in *Production, location and change* and on invisible exports or similar under *Global interdependence*.

This paper again demonstrated the variety of resource materials which may be used for questions. It comprised an unfamiliar model, that of the product life cycle for **Question 10**; a photograph from an environmental pressure group which had appeared in a newspaper for **Question 11**; a three-dimensional block diagram for **Question 12**; a located bar chart for **Question 14**, and Friedmann's classic core-periphery model for **Question 16**. In their preparation of candidates for the examination, teachers are encouraged to introduce a wide range of materials for interpretation and comment.

Examiners noted few rubric errors, although answering both questions from one option is clearly excluded and results in only the higher of the two marks being taken.

In some cases expression limited the clarity and the quality of the geography presented but generally speaking standards of language, grammar and expression are firm to good. Few candidates drew maps and diagrams but those that were produced could be effective in, for instance, locating the agricultural system in **Question 9** or showing the global operation of a transnational company in **Question 15**.

Whilst most questions were interpreted soundly, some terms and concepts seemed to be problematic for candidates, most notably 'agricultural system' in **Question 9**. Some interpreted 'regional development' in **Question 16** at an inappropriate scale. Both these issues are dealt with in the question-specific comments which follow.

Comments on specific questions

Production, location and change

Whilst **Question 9** on agriculture was the more popular of the two, a large number of candidates attempted **Question 10**. Many of them struggled to interpret Fig. 5 correctly.

Question 9

Although the syllabus requires the study of one arable and one pastoral system, most candidates found it hard to identify a system suitably and weakness in **(a)** tended to lead to a reduction of quality in **(b)**.

(a)(i) For 'name' many simply reused the term arable or pastoral from the question or named a farm, rather than using a term such as intensive subsistence or plantation of a particular crop, for instance sugar. For 'locate' a sketch map was acceptable, or a place, area or region. Many country names were just too broad, such as India, and 'Africa' was not acceptable. Taking a whole country was self-penalising in that accounts tended to cover several different systems rather than focusing on one across the country. Both marks available could be achieved by a simple sentence such as 'Extensive commercial wheat production on the Canadian Prairies' or 'Pastoral nomadism practised by the Rendille in northern Kenya'.

(ii) Most candidates identified 'physical factors' correctly as land, terrain, soils and climate, perhaps including climatic hazards. It was also acceptable to include pests and diseases and irrigation. Many found it challenging to use their material in terms of 'land-use and practices' and rewrote learned material on the necessary growing conditions for a particular crop or produced a general answer unrelated to the case taken in **(i)**. Better quality responses were based firmly in the chosen system and paid attention to both land-use (what the land is used for) and practices (how this is done), although there was no requirement for balance.

(b) The full range of answer quality was seen, depending on how rigorously a system was defined in **(a)**, how detailed the example was and how skilled a candidate was in argument and assessment of extent. Nearly all candidates identified 'political factors' well, some recognising their operation at different scales, such as local government, national government and at supra-national scale, for instance in the EU (European Union), although most answered acceptably in relation to national government initiatives. For the highest reward, detailed knowledge of 'recent changes' was needed as well as an appreciation of other factors. These could be from any other dimension(s): social, including behavioural and farmers' choices; economic, e.g. profit maximisation; or environmental e.g. in response to desertification or soil erosion. Examiners took a generous view of the term 'recent' but it should be noted that the syllabus carries a dateline of 1960. A short time-scale of a few years, for instance in response to land redistribution or changes in global markets was fully acceptable. At a lower level, responses tended to be descriptive of the system, farm or cultivators with any changes obscured in a general account and barely assessed, if at all.

Question 10

The response to part **(b)** was generally stronger than that to part **(a)**, as many candidates were suitably prepared for the topic which was taken straight from the syllabus, but found Fig. 5 challenging.

(a)(i) Success here and in **(iii)** involved interpreting the boxed diagram or table of inputs and stages correctly, and understanding that **1**-**3** were in rank order, as shown by the size of the squares in which they were placed. This made **1** the most important and the largest. The correct identifications in **(i)** were therefore scientific engineering know how and external economies of scale.

(ii) Few candidates could offer a full definition of external economies of scale, either getting one or the other aspect (scale economies/external) but seldom both.

(iii) A full answer required attention to the trends over time rather than an approach of three comparative static situations, one for each stage. If candidates misinterpreted the scale again, it inverted the trends and seldom achieved any credit as a consequence.

(iv) This was answered well, most candidates achieving both marks straightforwardly. Responses showed understanding of product sales falling off because of such issues as a change in fashion, technological shift, market saturation or competition from innovative or lower-priced products.

(b) Although the case studies taken were very varied from post-war Japan to LEDC home country, answer characteristics were quite similar. The best worked from detailed knowledge of a country's manufacturing (e.g. named industries, named products, specific locations or initiatives, dated events), were carefully focused on obstacles and assessed what had/had not been achieved with some data or sector support. One obstacle account, if developed well, could achieve a maximum of ten marks. Weaker accounts often strayed from manufacturing into other sectors of the economy, were for a country in name only or described industrial development perhaps with the use of a simple assessing word such as 'success'. One Senior Examiner noted shrewdly 'where candidates selected their own country, frequently an over-optimistic assessment was given of the growth of manufacturing'.

Environmental management

Of the two questions, **Question 11** was the more popular. Fig. 6, the photograph of a coastal wind farm installation was only a stimulus to candidates, whilst Fig. 7 required interpretation.

Question 11

(a) This was answered effectively by most candidates with some very good balanced and developed accounts. If time was short, it was possible to use a table with two columns or bullet points, but this limited the potential of the points made. Most candidates seemed more aware of the disadvantages of wind power rather than the advantages. Many achieved full marks for the disadvantages, if they included at least one environmental observation such as the noise pollution produced or the turbines' being considered an eyesore. The main advantages of wind power were also rightly seen as environmental, it being both renewable and a clean, non-pollutative source. Confusion was apparent in the work of some candidates over two issues: cost and reliability. As

far as cost is concerned, wind power is generally acknowledged to have high installation costs but low running costs. In terms of reliability, wind is renewable and infinite, so cannot be depleted, but it is discontinuous in that it does not blow all the time nor maintain sufficient strength to generate power all the time. It is therefore unreliable in the sense of being intermittent, with the need for some back-up supply.

(b) The issue of the correlation of energy consumption and living standards is a challenging one, hence the command '*explain*'. At the lower end, in Level 1, some responses did no more than support the question by making clear that the candidate understood the correlation and could expand on it, perhaps using a 'high' unspecific MEDC situation and a 'low' LEDC. Better quality responses examined the nature of demand both personal/public and by sector, such as domestic, transport and industry. This was appropriately linked to issues such as economic development, industrialisation, personal affluence, materialism, necessity/luxury and maybe rural/urban disparities of supply or the use of sources such as fuelwood in LEDCs. More modest responses probably focused on electric appliances or gadgets in the home and failed to appreciate the wider picture. Those who could support their work with specific examples of energy consumption measured in percentage or kilowatt terms or similar were rewarded well as much exemplar support was of no more than the 'e.g. USA' or, worse, the 'e.g. Africa' sort. Whilst it was not necessary, the observations that in MEDCs demand has been stabilised or reduced by environmental concerns, energy-saving appliances and, arguably, tertiarisation were of a high order.

Question 12

A question about the quantity and quality of water usage, which introduced the term 'the Blue Revolution'.

(a)(i) To do well, it was important to restrict the response to the left-hand two sectors on Fig. 7, to appreciate the time-scale being uneven and to read three-dimensional axes carefully. A ruler may have been useful for this. The trend in water demand was shown as increasing strongly, with the demand for water for agriculture notably higher. There was no requirement to explain why this may have been so and therefore no marks were given for the explanations which many attempted.

(ii) Most candidates seemed aware that overuse of fertilisers can lead to nutrients being washed or leached into water bodies with the consequence of eutrophication (whether or not the term was known or remembered). Some mentioned pesticides or DDT. Only a few considered slurry as an issue or farmers' mistakes, but some supported these observations with a known instance. Few candidates developed their responses sufficiently to achieve all the available marks.

(b) Examiners noted two valid types of approach here. In the more usual one candidates confined themselves to the issue of fining; its associated positives, such as manufacturers learning a lesson, being shamed or losing profits; and its associated negatives, such as problems of effective monitoring, corruption or a willingness in industry to pay fines as a cheaper option than investment in changing systems and practices. The second approach was to introduce fines or consider them briefly but to move on to consider the need for a more comprehensive water strategy, involving other users and polluters e.g. domestic, transport or public utilities and also other elements such as publicity or education. These candidates pointed out that fining manufacturers could have only limited effect whilst other users continue to pollute water. Under both approaches the use of actual examples, which was rare, was credited well. Overall Examiners were impressed with the level of awareness of this important environmental issue shown by candidates, even where the account offered was general and the expression of ordinary quality.

Global interdependence

Question 14 on tourism was overwhelmingly popular but there were many good responses to **Question 13**.

Question 13

There was sound to good conceptual understanding shown of pertinent issues relating to international trade.

(a)(i) This was well-answered, many candidates achieving full marks for the two definitions. It was rare to find confusion with exports (items sold rather than purchased) or inappropriate examples taken.

(ii) Responses here were pleasing in that candidates could indicate why an excess of the value of imports over exports creates problems, such as indebtedness. Few recognised that excess exports over imports can also create problems for a country. Many included tight explanations of trade surplus and deficit and/or the balance of trade or balance of payments in their work. These often strengthened the response in the same way that appropriate exemplar support could.

(b) In considering global inequalities of trade flows, discussion mainly centred around why MEDCs dominate world trade and why terms of trade and other conditions work against LEDCs and any structural change in the situation. Many candidates were able to build up an argument using a range of factors from a number of dimensions: economic, such as market control and the earlier established economic development of MEDCs; environmental, such as resource endowment; or political, such as trade blocs and trading unions. Better quality answers recognised diversity within LEDCs, in particular the rise of NICs and their involvement in world trade or the significance of OPEC; and supported their work with detailed examples, for instance of trade in a particular product such as oil or sugar, or in a particular region such as within NAFTA. Weaker responses tended to describe global inequalities, which, whilst supporting the question set, did not explain the issue in the required manner. They also tended to include sweeping and basic statements such as 'LEDCs only export primary goods', which needed care and qualification.

Question 14

The resource Fig. 8 repaid careful study, as did the stem of the question from which the date, 1988, and the MEDC context could be taken helpfully.

(a)(i) Mass tourism was not well understood and the descriptions of character were limited. Most candidates could do no more than gain one mark for its involving large numbers of tourists. Many associated it wrongly with large groups, which, although mass tourism may involve, is not a defining characteristic. Some recognised one or more other characteristics such as package tours, well-developed facilities or its association with environmental damage and cultural erosion.

(ii) Identifying Fuengirola and Torremolinos was straightforward for most candidates. Some supplied a paragraph of comment unnecessarily and a few chose Marbella rather than Fuengirola, presumably on the basis of its number of hotel bed spaces. Resort status is not, however, simply defined by the presence of hotel accommodation.

(iii) The interpretation of what Manilva may have offered was a good test both of a candidate's map reading and of their understanding of tourism. There was enough map evidence (inland, over 200 m, distant from the airport and main centres, bar graph of small proportions, highest number of camping spaces on the Costa del Sol) for candidates to develop an effective answer. This was usually done in terms of peace and quiet, a nature lover's holiday, cheaper accommodation or hiking and the outdoors but with access to the coast. It was not acceptable to suggest eco-tourism, given the date and the scale shown, or wilderness tourism, given the situation.

(b) This tested understanding of Butler's life cycle model of tourism and an appreciation of different possible outcomes beyond stagnation. It was acceptable to see two: decline and rejuvenation, or more (rejuvenation, reduced growth, stabilisation, decline and immediate decline) as in the original 1980 model. Some candidates sketched the model usefully to assist their text. Most were right to recognise that decline does not necessarily have to follow stagnation although it will do if the time, effort, finance and planning are not put into the rejuvenation of tourism, or if other circumstances work against it, such as political instability, hazards or terrorism. Highest quality responses demonstrated firm conceptual grasp of the model and commanded contrasting examples of decline and rejuvenation, with supportive analytical text. Lower order responses recognised two possible outcomes, tending to describe one or the other and remained general or dealt with "Spain" in an unspecific way. International tourism and recent world events provided a range of interesting exemplars including the rejuvenation of Rotorua, New Zealand; Las Vegas, USA; and Spain itself with its blue flag beaches, interior destinations, heritage tourism and new target markets.

Economic transition

Regional development in **Question 16** was the more familiar and more popular topic but some Centres' candidates were well prepared for the international spatial division of labour in **Question 15**.

Question 15

Understanding of the term *international spatial division of labour* was clearly key to success in both parts of the question, with weakness in one leading to limitations in the other.

(a) A full explanation of the term explained all four keywords and made reference to at least one industry, often one of the global giants in computers, motor vehicles or clothing. Some candidates saw and explained the two elements, 'international spatial' and 'division of labour' suitably before illustrating them. Many candidates concentrated on the low end manufacturing and production jobs but ignored other functions such as headquarters and R&D, or marketing, which is often more spatially diverse. An annotated sketch map or sketch diagram of operations in one TNC (transnational corporation) could have been highly effective in assisting the response.

(b) Some candidates failed to spot the either/or in the question and could only be credited with the better of the marks achieved for LEDCs or MEDCs. Some candidates found it hard to know into which category to place NICs. Despite their economic development, most still belong naturally with LEDCs. Candidates who chose to consider LEDCs seemed to have more material available and to be able to provide fuller assessments than those who chose MEDCs, where the advantages may be seen as principally economic and the disadvantages perhaps less readily identifiable. For instance, few seemed aware of communities in MEDCs being adversely affected by the transfer of labour-intensive manufacturing processes overseas. Whether deindustrialisation is advantageous or disadvantageous overall needs careful treatment. LEDCs do seem to get more attention in the literature. Advantages include a general 'economic boost', the training of labour, employment which increases income and standard of living and produces a market for other goods. Disadvantages include what are often claimed to be exploitative and pollutative practices or the readiness of TNCs to quit one LEDC in favour of the next least-cost location. The best answers were able to support the assessment they made with examples from one or more countries or TNCs.

Question 16

Although core-periphery as a concept is in the syllabus, Friedmann's model is not and so was provided to study in Fig. 9. Some candidates misinterpreted the scale at which the question should be answered, taking region to mean part of the world rather than part of a country, despite the use of the word 'country' in **(a)(ii)**. Teachers' attention is drawn to this section of the syllabus where both the phrase 'within countries' and the bracketed note make it clear that application at the global scale, whilst of course valid, will not be examined.

(a)(i) It was possible to derive the description of the resource-frontier region from Fig. 9 or to supplement that with knowledge or an example, for instance, that it receives flows of labour, capital, goods and commodities from the core (and the periphery) as shown by the three arrows, or that it is a frontier in the sense that it is here that rapid development is happening and it is opening up as a region.

(ii) As in the previous question's **(b)**, the either/or element was missed by a significant proportion of candidates. By answering on both the core and the periphery, accounts tended to offer rather simple opposites and leave less time for development beyond the superficial. Some candidates struggled to direct their material to the demand here, for instance, about the building of Brasilia in NW Brazil. There were some good answers on core areas particularly, which combined detailed knowledge with strong concepts such as initial advantage, the multiplier effect or cumulative causation. Lower quality accounts tended to be quite general and descriptive and maybe just dealt with the capital city rather than the core region as a whole, of which the capital is commonly the focus.

(b) After a less familiar **(a)** candidates responded to a classic development question producing the full range of answer quality. There was no particular line of argument expected, although most argued that disparities can be reduced but not solved as such. The few responses that made achieving this sound easy were ultimately self-penalising. Higher order answers were well-structured, pursued a clear line of argument throughout and marshalled one or more case studies to support that. There was extensive use of Italy's Mezzogiorno and of Brazil's different regional initiatives but Examiners welcomed some perceptive and laudable use of home country material. This often had the advantages of being better understood by candidates, more realistic and more up to date. The best accounts usually included an honest assessment of the sort which observed that, despite all that has been attempted, done and funded, the core remains dominant. This was often supported with some data, either economic, such as income per person or investment level; or social, such as access to clean water or educational attainment. Lower order answers tended to be descriptive, recalling the regional character of the chosen country and perhaps using a simple phrase like 'a success' or 'it worked' as the assessment.