

GEOGRAPHY

Paper 9696/01
Core Geography

General comments

This examination produced a number of outstanding scripts and Centres, but the overall standard of many responses was disappointing. This paper appears to have pointed up several gaps in candidates' preparation for the examination. Within the rocks and weathering part of the syllabus candidates seem unable to give a detailed understanding of much other than plate tectonics and mass movements. Slopes, weathering and rock properties seem to be far less studied. Similarly in atmosphere and weathering, in this examination, urban climates were far more confidently approached than radiation balances, lapse rates or wind belts. In human geography, population change yields many more assured answers than settlement dynamics. In this examination many candidates failed to identify many standard urban processes such as gentrification or filtering. In most of the recent examinations there has been a marked reluctance to attempt the questions on settlement dynamics in Section C of the paper. This year proved no exception, with very few answers to **Question 11**. This was disappointing, as many of the answers which were received were of a high standard, revealing good understanding of concepts such as sphere of influence and thresholds.

The concentration of attention on just parts of a core syllabus can have a disastrous impact upon performance, particularly in Section A of the paper, where all questions are compulsory. It leads to parts of questions and indeed, on occasions, whole questions not being attempted by candidates. The subsequent loss of marks is near impossible to make up on those parts of the syllabus more favoured by candidates' attention. With core studies in geography it is important that equal preparation is given to the whole of the syllabus and not to concentrate solely upon those topics that the candidates feel are more accessible.

Candidates have adapted well to the time constraints of a three part examination paper. It is only rarely that a candidate is seen to have run out of time on the final question. Similarly, where all questions have been attempted, most candidates allocated their time appropriately between questions in Section A. There has been an increase in the skills employed by candidates in the use and analysis of the resource material. Nearly all incorporate the data in their answers and exhibit some ability to unpick and interpret the data. Only a minority merely regurgitate material in an unstructured form, although there is still some difficulty experienced by many in the use of appropriate geographical and spatial terminology in describing patterns within data. This was apparent in **Question 4(b)**, where candidates were required to describe the pattern of population distribution in Chile.

Rubric infringements were very infrequent and, overall, the standard and clarity of English was admirable.

Comments on specific questions

Section A

Question 1

Most candidates found this question accessible and obtained reasonable levels of credit.

- (a) Nearly all answers correctly identified overland flow and groundwater (base) flow.
- (b) Interception storage is well understood, although a minority suggested that the water was stored inside rather than on plants and trees. Many pointed to losses from this store either through evaporation or by stemflow to the surface.

- (c) More difficulty was found in this part of the question. Most were able to trace the progress of water through the system shown on Fig. 1, but many did this by describing the most direct route via surface storage and soil moisture storage. Little explanation was given of how this was achieved by describing the processes of infiltration and percolation. Many also failed to identify losses from this route by throughflow and evaporation and transpiration.

Question 2

Many candidates were unable to demonstrate much understanding of energy exchanges at the earth's surface. Indeed, a significant number failed to attempt the question at all.

- (a) Many candidates failed to read the question carefully and concentrate upon differences in the **effects** of day and night time radiation energy. During day time the radiant energy progressed downwards into the earth's surface hence the air was warmer and the soil cooler. At night time the radiant energy was up from the surface making the soil cooler and the air warmer.
- (b) Few candidates could offer much in way of an explanation of the differences in energy exchange. Better answers described how solar radiation entered the atmosphere as short wave radiation and was absorbed at the surface before being re-radiated as long-wave radiation. A surprisingly large number of accounts failed to distinguish between long and short wave radiation. Similarly, in the absence of solar energy at night, relatively few answers saw that the only energy source was that of counter radiation, giving rise to a net loss of heat from the surface upwards into the atmosphere.

Question 3

A poor level of response that suggests that slopes is a part of the syllabus that few candidates had prepared.

- (a) Very few candidates could identify these slopes as a free face (cliff) and debris (rectilinear) slopes. Even simple description was absent or incorrect in most answers.
- (b) Most candidates approached this question by going through each of the factors in turn. These were often afforded vague and generalised descriptions that were frequently completely unrelated to slopes. Some accounts did relate these factors to mass movements but very few could give any indication of the likely impact upon slope shape. Some of the better accounts did realise that climate played a major role in that it influenced all other factors. Similarly these candidates were able to develop the important role of slope transport.

Question 4

Most candidates managed to accumulate credit here, although there was often considerable variation between the different parts of the question.

- (a) Virtually all candidates correctly identified either Santiago or Valparaiso.
- (b) Many candidates achieved full marks here by observing the pattern of population distribution by expressing it in terms of central high densities, peripheral low densities to the north and south and areas of more mixed densities in between. This was supported by selective quoting of names and data. Poorer answers merely listed the data for each area and left the reader to work out the pattern or were hampered by an inability to describe patterns in appropriate geographical terminology.
- (c) A surprising number of candidates did not understand the term overpopulation and hence failed to link population with the resources available for its sustenance. These answers suggested that population density had not been calculated correctly due to inadequacies in the data collection. Those that did understand overpopulation were often able to produce useful exemplification to make their point.

Question 5

Poorly answered overall, with relatively few able to interpret the diagram or describe the urban processes in operation.

- (a) Only a minority were able to identify gentrification. This tended to be Centre-specific.
- (b) Both the term and the nature of filtering appeared unknown to most, even with description given in the question and the evidence of the diagram, few could give any sort of cogent explanation.. The nature of the inner area housing stock and its downward filtering was observed by very few. The outward movement of higher socio-economic groups was better understood, but this was infrequently associated with filtering and the inheritance of properties by lower socio-economic groups.
- (c) Many answers progressed little beyond the role of urban renewal or shanty town replacement and often could produce only a single example. Many wrote about renovation and gentrification, which was not acceptable within the context of new build. Better answers recognised the impact of planning controls such a green belts or the protection of open space within urban peripheries, as well as attempts to resuscitate declining inner city areas. Given the range of examples that could have been chosen in both MEDCs and LEDCs, the results were very disappointing.

Section B**Question 6**

A popular question but one that was often answered inaccurately.

- (a)(i) Most answers failed to give an accurate definition of either velocity or discharge. Velocity was merely given as speed of flow without any indication of time. Discharge was stated as amount of flow with only infrequent mention being made of the volume of water passing a particular point in the channel. Better answers gave this a simple formula ($Q = V \times A$).
- (ii) Helicoidal flow was most frequently described as corkscrew flow without any further development. A simple annotated diagram would have sufficed for the marks.
- (b)(i) Waterfalls were accurately described by most with the employment of well-annotated diagrams.
- (ii) Gorges were very poorly described or ignored completely by many candidates. Few diagrams were produced and even the better answers could not describe a gorge beyond the statement that they were a product of the retreat of waterfalls.
- (c) A very disappointing response as few answers were able to detail any impacts of human activities upon **channels**. Many answers dealt with changes within the catchment area such as urbanisation or deforestation but were unable to relate this to many impacts upon the channel beyond that of flooding. Better responses were those that discussed damming, abstraction, straightening and levée building, but even here they were less successful at discussing the extent to which these activities could affect the channel. There was a notable lack of any exemplification.

Question 7

Not popular and producing very mixed responses. Generally part (c) was the most successfully answered.

- (a)(i) Although the understanding of lapse rates has improved in recent years, they remain the subject of much confusion. The most common error was the assumption that both adiabatic and environmental lapse rates referred to parcels of rising air. A simple way of defining these would have been via an annotated temperature/height diagram. This was rarely seen.
- (ii) Most knew that frost was frozen water but were far less certain as to its location (on the surface) or of its nature.

- (b) The pattern of surface winds was not well known by candidates. In many instances this part of the question was not even attempted. All that was required was a simple diagram showing the trade winds, mid-latitude westerlies and the polar easterlies. This was very rarely forthcoming. Explanation could be given in outline terms of the redistribution of heat on the earth's surface by producing pressure cells.
- (c) By far the best part of most answers. The nature of the heat island effect is now well known, although a minority of candidates persist in ascribing it solely to atmospheric pollution. Many candidates could itemise aspects of urban climates in terms of temperatures, precipitation, winds, and humidity. Only the better answers, however, addressed the extent to which these differed from the surrounding countryside.

Question 8

Produced very patchy responses. Candidates often were able to deal with only part of the question.

- (a)(i) Rock slide was often confused with rock falls and was generally poorly defined. Soil creep was better known.
- (ii) Many repeated what they had written in (i). Most realised there was only a limited impact and the most common suggestion was of the impact upon trees and walls rather than the slope itself. Better answers described terracettes and the accumulation of soil behind walls.
- (b) Many described the composition of granite in outline terms but failed to mention its hardness and jointing patterns. This meant that they had difficulty in giving one characteristic which influenced granite weathering. Those that dealt solely with mineral composition could not use freeze thaw weathering with any clarity. There were some good answers that demonstrated the differential impact upon component minerals of chemical processes such as hydrolysis.
- (c) Some answers ignored the question and attempted to deal with all plate margins. The nature of subduction is generally well known and often adequately explained and illustrated in diagrams. It is the link between this process and the resultant landforms that still remain poorly understood. Most answers listed or even showed on diagrams, ocean trenches, island arcs, volcanoes and fold mountains. Only the few better responses were able to give any realistic explanatory link with convergent margins.

Section C

Question 9

Popular and often well answered.

- (a) Most understood dependency and were able to illustrate it by reference to an age-sex pyramid. It was not necessary to draw the pyramid in great detail - merely to indicate general shape and the dependent age groups. The precise nature of these at times caused some problems as they did with the calculation of the dependency ratio.
- (b) Most recognised a greater investment in older age groups in terms of pensions, retirement homes and medical facilities. It was assumed that this would be achieved by switching resources from youthful age groups. These tended to be given in generic terms with little support from data or exemplification. Better answers realised the implications for government spending objectives in such things as the recruitment of migrant workers or the establishment of pro-natalist policies.
- (c) The weakest part of most answers to this question, as many found it difficult to construct an argument concerning the nature and basis of predictions. Some answers dwelt only upon the current circumstance in Japan that had produced a declining birth rate and an ageing population. Better answers realised the perils of extrapolating current trends of vital rates over a period extending to 1380 years. They pointed out the various changes, both socio-economic and political that might occur in that time-frame. In addition they made some evaluation of the purpose and worth of such predictions.

Question 10

Popular with most candidates aware of what was required in parts **(a)** and **(b)**. Part **(c)** was frequently misconstrued.

- (a)** Most answers demonstrated the decline in infant mortality consequent upon an increased awareness of medical facilities and hygiene. Better answers saw beyond this to incorporate other effects of education such as fewer children to be cared for, higher incomes and the impact of an educated community.
- (b)** There were a lot of ill-focused, rambling accounts that dealt generically with methods of publicising birth control. The education of young people became lost in these accounts, although most realised that schools had a role to play. Better responses were far more specific, tying their accounts to actual policies of governments.
- (c)** Often poorly answered as many candidates either ignored the diagram and wrote about population change in general a country such as China or they rehashed material from the diagram with no reference to population change in any country. In both cases the answers were, at best, partial and lacked any evaluation. Surprisingly few candidates developed a case study of population change making any sort of evaluation of the demographic impacts of educating girls.

Question 11

Very few answers were received to this much-neglected part of the syllabus. Some of this limited number were of a very high standard.

- (a)(i)** The expectation was of a relatively straightforward definition as the area around a settlement that is influenced by that settlement either economically, politically or socially.
- (ii)** This could be discovered by application of some sort of breakpoint theory through the use of questionnaire surveys or functional studies of catchments of such things as schools, newspapers etc.
- (b)** Amongst the few answers the concept of threshold appeared well understood. Candidates were able to illustrate it with reference to different goods and services, often contrasting two settlements, one large and the other small.
- (c)** A sensible approach would have been to select either a national or sub-national example of settlement hierarchies and to discuss the more fixed elements and changes, such as movement within the hierarchy either due to economic, social or political factors. Clearly there was an opportunity for candidates to develop a case study that would allow the inclusion of local knowledge.

GEOGRAPHY

Paper 9696/02
Physical Geography

General comments

The performance on this examination was extremely variable between different Centres, although the overall performance was somewhat disappointing. The questions set on advanced options are designed to allow candidates to demonstrate their knowledge in depth and to employ skills such as judgement and evaluation. Unfortunately relatively few candidates availed themselves of the opportunities that the paper offered to show their understanding of physical geography. Many answers were superficial, showed only a limited grasp of physical processes and were unable to develop appropriate exemplification or case studies.

The vast majority of candidates selected questions from coastal environments and hazardous environments. This has the effect of often reducing candidates' opportunities for producing exemplification or case studies from their local environments that would be afforded by questions drawn from tropical or arid and semi-arid environments. Examiners always afford due credit to local observation and exemplification and candidates should be encouraged to use their own observation wherever appropriate.

One question in each environment contains a resource of stimulus material as part of the question. Many candidates answering these questions failed to utilise the material to any extent. Some ignored the resource and addressed the general topic of the question. Others merely regurgitated material derived from the diagram without any explanation or development. The more successful answers were those that incorporated the resource into their answer fully exploiting and contextualising the resource material. Good examples of this were seen in **Question 4**, where many candidates were able to develop their knowledge of constructive and destructive waves in the context of the breaker, surf and swash zones shown on the diagram. The few answers given to **Question 8** tended to merely regurgitate the information contained within the flow diagram, whilst answers to **Question 2** often completely ignored the diagram.

The use of diagrams as part of answers was generally acceptable, although this could have been better exploited, particularly in the descriptions of landforms or processes in part **(a)** of many questions. Examiners are very conscious of the time it takes a candidate to produce a well-annotated diagram and will always reward such diagrams where they are relevant.

There were very few rubric errors and in most cases the standards of English and handwriting were good.

Comments on specific questions

Section A

Question 1

- (a)** Most candidates knew what the ITCZ means but weaker answers were only able to give a brief description followed by an outline of its movement. Better answers were those that included the convergence of the trade winds as part of the Hadley cell, the seasonal shift of the ITCZ and hence the movement of the area of uplift, and consequent rainfall. Although some answers were able to point to the influence upon the Indian monsoon very few displayed any knowledge of the wet and dry seasons of tropical Africa

- (b) The savanna ecosystem appears far less well known than that of the tropical rainforest. The better answers were able to give some indication of vegetation structure including various grasses, baobab and acacia trees and even some indication of zonation in conjunction with the amounts of rainfall available. Very few accounts, however, were able to give even outline descriptions of characteristic soils. Many candidates used the terms 'ferruginous' or 'lateritic', but were unable to give any detailed description or to provide a typical profile. Surprisingly, even the response to human impact upon the ecosystem was very limited, although better answers did recognise the use of fire and the development of plagioclimax vegetation.

Question 2

- (a) The diagram appeared accessible to most, but often elicited a poor response. Many restated the temporal changes in nutrient levels shown in the diagram without any attempt to explain why or how these changes had been brought about. Better answers were those that recognised that ash from the burning had contributed important elements to the nutrient levels in the soil and were able to develop the depletion of nutrients due to uptake by plants and the removal of the cut biomass. Few, however, were able to explain this as part of the nutrient cycle or to illustrate it by application of a Gerschnel diagram. This could have been effectively employed to illustrate the recovery of nutrient levels under secondary forest growth.
- (b) The responses were almost universally disappointing, as few were able to describe the main processes of chemical weathering or to point to their impact upon any major group of landforms. Many produced ill-sorted lists of chemical processes, displaying little understanding of carbonation or of hydrolysis. Some included physical processes in the lists and others dwelt upon less significant processes such as hydration. Even the basic chemistry of the reactions in carbonation were not well expressed and there seemed to be little appreciation of how they operated in tropical environments. The study of landforms seems to have been declining in recent years and few candidates were able to get beyond a basic description of caves and stalactites in limestone, and of tors in granite.

Question 3

- (a) A very mixed level of response. Some candidates were unable to describe a sediment cell with any degree of accuracy. They were able to gain some credit for an association with some of the sedimentary landforms such as spits and tombolos. Better answers described the sediment cells as stable, partly closed systems, with inputs and outputs. They were able demonstrate the sources of sediment, its transport by longshore drift and its deposition as spits and bars. In some cases sinks were mentioned, although few were able to describe onshore/offshore sediment transport.
- (b) This is an area of coastal geomorphology that seems to be less studied by many candidates. The role of rock type and structure was limited in many answers solely to the production of headlands and bays by the alternation of unspecified hard and soft rocks. Better answers did introduce differential erosion that could result in the production of caves, arches, stacks and stumps. Very few responses were able to describe the importance of the angle of dip, faulting and bedding planes in specific types of rock to produce variations in cliff profiles. Even fewer answers took account of the 'to what extent' aspect of the question and considered the role of processes such as wave quarrying on well jointed rocks or produced examples of the impact of sub-aerial processes on cliff form.

Question 4

- (a) Many found this diagram challenging and quickly abandoned any attempt to employ it and merely resorted to a general and often inaccurate description of constructive and destructive waves. Better answers attempted to link the energy and form of waves in the shore zones to gradients and shore forms. They were thus able to explain the production of bar, trough, beach and berm.
- (b) Many candidates now understand the conditions that are required for the healthy growth and development of coral. There were a number of good answers that were able to relate these conditions to a variety of threats, both natural and human induced. They also made some estimate of the means by which these threats might be reduced, citing well chosen examples from Thailand, East Africa and the Great Barrier Reef. Weaker answers progressed little beyond the impact of tourism upon coral reefs in terms of pollution and souvenir collection.

Question 5

- (a) Many candidates included a wide range of slope failures under the heading of avalanches, not all of which were of relevance (e.g. landslides, mud flows etc.). Better answers largely confined themselves to snow and ice, although other avalanche phenomena (e.g. rock avalanches) were sometimes included. These answers included the accumulation of snow, applied stress, slope angle, triggers and different types of resultant avalanche. Their hazardous nature was demonstrated by reference to the effects of avalanches that had occurred in Alpine regions. Weaker answers concentrated on hazardous effects with unspecific references to the engulfing of towns, multiple deaths and the destruction of farmland and animals. Much of the latter was the result of earthquakes or volcanic eruption rather than a direct consequence of avalanches.
- (b) Methods used in the prediction of earthquakes and volcanoes are increasingly well known, although those associated with hurricanes, floods and tsunami remain less certain. Quality of answer depended upon the degree of accurate detailing of the methods employed rather than the simply listing of instruments and phenomena. Many of the better responses related to volcanoes where there was good understanding of a range of predictive methodologies often enhanced by appropriate use of examples. In the case of earthquakes, weaker answers concentrated on the observation of animal behaviour and there was confusion between seismographs and Richter scales. In the case of hurricanes, tsunami and floods attention was focused upon the issue of warnings rather than prediction.

Question 6

- (a) There was a wide range of quality demonstrated on this popular question. Many gave lengthy and detailed explanations of cyclones often accompanied by elaborate diagrams and extended accounts of cyclone hazards with examples drawn widely. This was often achieved by ignoring Fig. 3 and at the expense of part (b) of the question. Better answers confined themselves to the brief of the question, that is, they concentrated upon a description of the nature of cyclones and the hazardous effects pertaining to Cyclone Eline.
- (b) There were some very good answers that displayed a global coverage, where links between hazards and plate margins were well demonstrated and exemplified. These accounts made good use of diagrams and assessed the degree of hazard that could be observed at different plate boundaries including secondary hazards such as landslides and tsunami. Many answers, however, were disappointing with vague references to the 'Pacific Ring of Fire', little distinction between volcanic and earthquake occurrences at the plate margins and illustrated by crude diagrams.

Question 7

- (a) Candidates were able to describe both the processes of wind erosion and to give some examples of the impact upon landforms. There was, however, a considerable range in the degree of precision of explanation of the processes and in describing the impact upon landforms. The better answers clearly explained both deflation and abrasion and evaluated their effectiveness in influencing relevant landforms such as deflation hollows, ventifacts, pedestal rocks, zeugen and yardangs. Diagrams showed these effects at appropriate scales. Weaker answers spoke vaguely of wind erosion as affecting a range of desert landforms from pedestal rocks, through to wadis, buttes and dunes with little indication as to how or why.
- (b) A very disappointing response. Few candidates produced any case studies or exemplification and generally the description of irrigation methods were poor and vague. Some candidates did mention the use of dams (e.g. Aswan) but there was little mention of the use of boreholes or centre pivot methods. Some mention was made of the problems of salinisation, but references to underground depletion of fossil water supplies were rare. Evaluation was generally lacking beyond simple statements that irrigation was beneficial.

Question 8

- (a) Amongst the few answers to this question, there was little knowledge displayed of the nature of aridisols, and none of any soil types characterising semi-arid areas. Most could offer little beyond the suggestion that the soils of arid areas were characterised by dryness, a lack of humus and a sandy nature.

- (b)** The opportunity offered by the question to compare and contrast the processes of desertification shown in Fig. 4 with a case study of the candidates own choosing was almost universally ignored. The majority of accounts regurgitated the contents of the boxes on the flow diagram in full merely stating that it accorded with the experience of desertification in 'the Sahara' or 'the Sahel'. Clearly such an approach could be afforded little credit. Only one or two accounts demonstrated any knowledge of the nature or causes of desertification in any area.

GEOGRAPHY

<p>Paper 9696/03 Human Options</p>
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General comments

In the second June examination of Paper 3 since its separation from Paper 2, Examiners commented on the spread of Options and questions attempted by candidates and on the diversity of examples used. Whilst the syllabus was developed, in part, to allow the use of home country material for many topics, it is good to see evidence at this level of a wider geographical understanding, for instance in relation to global issues such as controlling trade in **Question 5(b)** and economic inequalities in **Question 8(b)**.

Centres need to teach at least two of the four Options to enable candidates to attempt one question from two different Options. The more popular Options remain **Environmental management** and **Global interdependence**. Within these, **Questions 3** and **6** were the more popular choices this examination session. Teachers are again advised to caution candidates against attempting to respond to any question from an Option which they have not been taught, simply using their general knowledge, as only a few marks will be gained at best.

There were very few rubric errors, most occurring where candidates wrongly attempted one question from each Option, although the instruction on the cover of the paper is clear. In such a case the maximum credit is given that can be awarded within the rubric.

The questions were generally understood satisfactorily, although many candidates interpreted 'monitored' in **Question 4(a)** mistakenly, as meaning overcome or solved, rather than observed and checked. A small number of candidates had serious problems expressing themselves in English, which made it difficult to discern the points being made. A different but equally small number of candidates failed to write in narrative form and produced responses that were simply notes or bullet points. In such cases, although basic points may be made effectively, concepts and arguments tend to be underdeveloped and reward limited as a consequence.

Examiners noted that with Paper 3 as a separate examination, it is a lack of knowledge and understanding rather than a lack of time, which is the critical factor affecting candidates' performance on this paper. Many candidates simply had insufficient knowledge of topics to produce responses of middle to very good quality. This was certainly the case for the two most popular question choices and was noticeable in response to **Question 6(a)** on hydro-electric power (HEP) and **Question 6(b)** on the positive environmental impacts of tourism.

Examiners observed some excellent use of exemplar material from candidates' home countries, as the syllabus intends. This was notable, for example, in relation to labour supply in agriculture in **Question 1(b)**, energy strategy in **Question 3(b)** and the degraded environment in **Question 4(b)**.

With a full one hour and 30 minutes available, far fewer incomplete responses are seen than was previously the case. Any candidate omitting to answer part **(b)** of the second question chosen must recognise that 15 of the 25 marks are not available to them and that their performance will be limited as a consequence. Candidates who lack time for the second response are advised to attempt all parts of the question, however briefly, and, if necessary to supply notes or points for one part, rather than leaving it blank or just writing an introductory sentence.

At Advanced Level, part **(b)** of most questions requires a piece of sustained writing in which an argument is framed and supported with evidence. Most parts **(b)** require an assessment made, although **Question 6(b)** and **Question 8(b)** required explanation, following evaluation in parts **(a)**. In preparing candidates for the examination, teachers are encouraged to develop candidates' evaluative writing. Clear opening and concluding paragraphs and a discernible thread to the response that echoes the key words of the question explicitly, always gain appropriate reward. Candidates may also benefit from developing the expression of, and skills in, assessment. For example, weaker candidates tend to make descriptive rather than evaluative responses, or offer simple judgments such as "the attempt worked" or "it was bad for everybody". Better quality candidates are often able to observe such things as degrees of success or failure; instances where solutions worked in part, but had unforeseen results; outcomes that are differentiated spatially; or that some group(s) of people benefited, but others did not or did so less.

Candidates responded quite well to the variety of resource materials within the Insert and demonstrated a good range of skills in data response, interpretation and analysis. It remains the intention to set questions using diverse resources for these Advanced Human Options. Teachers are again encouraged to give candidates practice throughout their course in interpreting and commenting on a variety of types of resource materials of which the Internet is a rich contemporary source.

It should be noted that no particular local knowledge is expected of any of the named locations featured in the Insert; i.e. Malawi in Fig. 1; the River Ganges in Figs 2A and 2B; the Republic of Ireland's ports in Fig. 3A; or Cat Ba Island, Vietnam, in Table 1 and Fig. 4. In most instances where named countries are used, the label LEDC or MEDC is given to assist candidates, as is a simple map, on the basis that these places are likely to be unfamiliar to most candidates. Such questions set on specific places look for responses based on skills and geographical understanding and not on knowledge. Hence candidates should be encouraged not to assume that they should not answer a question because they have not studied the actual place. So, for example, the highly popular **Question 6** in part **(a)** made use of Table 1 and Fig. 4 for data evaluation in **(i)** and to seek explanation of background factors affecting the survey outcome in **(ii)**. The interesting and rare data set was from a real survey on the Vietnamese island but, in relation to the impacts of tourism and residents' perceptions of them, could have been from many places in LEDCs and no knowledge of Vietnam was needed in order to make a full response.

Comments on specific questions

Production, location and change

Question 1

This was the more popular of the two questions, especially in countries where agriculture remains an important economic activity.

- (a)** This was a structured element based on the interpretation of Fig. 1 and the farming system shown.
- (i)** Many candidates identified throughputs, such as manure, or outputs, such as the maize, rather than inputs. Some correctly identified inputs such as the family's labour or the land itself. A few recognised that water, although not shown on Fig. 1, would also be an input and were credited.
- (ii)** Candidates needed a clear understanding of the concept of intensification to do well here. It is understood to be the increase in inputs of labour and/or capital, in order to increase output, whilst keeping the land area constant. As such suitable ways included educating the workers, purchasing a tractor or additional fertilisers, or investing more in the dairy enterprise. Some candidates suggested increasing milk production and adding value, for example through producing and selling cheese, as well as milk. If candidates gave more than the '**one way**' asked for, only the better or best way could be credited.

- (iii) A full response explained the possible affects of several hazards on the farming system shown in Fig. 1. Although drought and flooding were seen the most, some candidates recognised a range of hazards from tectonic events to locusts and cattle plague. Some non-environmental hazards were acceptable, such as political instability, but personal misfortune was not creditable as a hazard. Many responses were simplistic and based only on destruction. Better responses had more development and indicated interrelated effects felt throughout the production system. Good quality points included the recognition of short term and longer term effects, and the possibility of some positive effects, for example when a hazardous event elsewhere increases the demand for milk or maize and prices rise, or where flood waters leave fertile silt behind when they recede.
- (b) Given the fundamental role of labour in all agricultural production, Examiners noted how little many candidates were able to write about labour supply. Most approached the subject through the issues of costs, mechanisation and rural-urban migration. There were some references to high unemployment levels in some countries, such as India and Zimbabwe, making it relatively easy to obtain labour. The issue of cost could be related to family labour, hired labour and seasonal or permanent labour, as well as to poverty and affluence, debt and profits. The issue of mechanisation was at best seen both as substituting for labour in terms of quantity but making a new labour demand in terms of skills. The significance of rural-urban migration offered candidates a rare opportunity to synthesise material from the Human Core with that for one of the Options. Many candidates linked it to rising expectations derived from better education, parental expectation and a growing feeling that agricultural work is hard, dirty and “beneath” many of today’s young. Some candidates attempted to consider the issue of labour comparatively between farming systems or located examples, such as subsistence cultivation in Zambia and wheat farming in the Canadian Prairies and this could be productive. Weaker candidates tended to generalise between LEDCs and MEDCs, but this could produce loose or vague comments and sweeping statements. Better candidates addressed the ‘To what extent’ element clearly in one way or another, some making comments about other challenges faced by farmers apart from labour supply, such as market fluctuations or political instability, although labour issues remained the focus of the response, rightly.

Question 2

Responses were characteristically uneven in quality, both between the two parts and within the parts, there being two aspects to each of them.

- (a) The full range of answer quality was seen from some well-informed and clear work supported by detailed examples and simple flow diagrams to explain *functional linkages*, to inappropriate responses which focused on industrial agglomeration or some other industrial topic. Examiners accepted a number of different typologies of functional linkages, of which backward and forward; and horizontal, vertical and diagonal were the most common. A number of candidates missed the second element of the question about the circumstances under which existing linkages may end. Others made them a major part of the response and Examiners marked this part flexibly in the best interests of candidates. Although some struggled to produce relevant ideas, especially where the earlier definition of linkages had been weak or faulty, some candidates wrote effectively about a range of situations. These might be internal to the manufacturer or supplier, such as a merger, unprofitability, the planned end of a contract or relocation; or external to them, such as political instability or technological innovation changing the nature of the market for the product or its components.
- (b) Despite the wording of the question, some candidates wrote generally on the character and location of industry with little reference to government policy and, in some cases, without reference to any one country. In such cases where the recall of learned material takes over from the demand of the question set, Examiners can only reward material which is relevant, not that which is true. Some candidates struggled to use spatially limited examples, for example of the location of one new manufacturing plant in one country, to satisfy a demand at the national scale. There were, however, a number of good quality responses, some of which were supported by sketch maps in order to deal better with ‘location’ in the question. In many of these better responses, specific government initiatives, some dated, and named located government-sponsored industrial estates figured prominently. Although responses did not have to be evenly balanced between ‘location’ and ‘character’ to do well, candidates ignored one of the two elements, usually character, to their overall detriment.

Environmental management

Question 3

One of the most popular questions on the paper, for which the full range of answer quality was seen.

- (a) Examiners were looking for a reasonably balanced account between ‘arguments for’ and arguments ‘against’ hydro-electric power (HEP) but had some flexibility to work to benefit candidates who produced a fuller explanation for one of these. In many cases, the arguments against were more fully developed, often because candidates were aware of major impacts associated with schemes such as the Three Gorges Dam, China, or Itaipú, Brazil, in terms of local populations and environments. Many candidates made simple statements, such as “it is cheap” or “it is expensive”, which needed fuller treatment and qualification to be creditable. For example, it is generally accepted that although the capital investment in building an HEP station is very high, running costs per unit electricity produced are low compared to other sources of energy. A small number of candidates confused HEP with either tidal or wave power or, more rarely, nuclear power.
- (b) A country’s energy strategy is understood to mean the plan or plans to deliver power at the national scale. A strategy should be distinguished from individual schemes, such as a named installation like the Kainji Dam in Nigeria or a particular project, for example Kenya’s Rural Electrification Programme. Given that most countries use a mixture of energy sources, an energy strategy should also be distinguished from any individual source of energy, such as coal or wind. Some candidates struggled to approach the demand at the appropriate scale and made quite descriptive responses in which the recall of learned material dominated. Better candidates worked the idea of failure or relative failure into their response from the start, often showing how aims and objectives had not been met or how they had been met only partially. Many candidates, aware of concerns about the emission of greenhouse gases, raised environmental issues. So, it was possible, for example, to see an energy strategy in a named MEDC that had succeeded in supplying people and economic activities for decades with electrical power from coal-fired power stations as being a failure in terms of its contribution to atmospheric pollution and global warming. In LEDCs candidates addressed issues such as urban/rural provision; costs to consumers; power shortages and power rationing; demand outgrowing supply; and debt, corruption or mismanagement interrupting the delivery of planned power installations or schemes. Examiners noted that a small but significant proportion of candidates assumed that part (b) was only about HEP, like part (a). This was not the case. Not only is it unlikely that a whole question would be set on one source of power, because of issues such as overlap, but any question which was about one source, such as HEP, would name it specifically, and not use the more comprehensive term *energy strategy*.

Question 4

- (a) Most candidates were able to extract the environmental impacts from Fig. 2A effectively, but a number retrieved all the impacts including the irrelevant social and economic ones which took valuable time and did not contribute to answer quality. There were three environments that needed to be included for a full answer: the cropping environment (agriculture); the aquatic environment (fish habitat) and the forest environment. Of these it was the salinity-sensitive forests which sometimes were overlooked. Answer quality depended more on the development of the points made, particularly in terms of explanation offered, rather than the simple recognition of the impacts on the three environments. Some candidates did little more than link the phrases in the boxes that made up Fig. 2A. Others offered simple geographical reasoning as to how, for example, lowering groundwater had implications for plant root systems, wells and boreholes, or the increased potential for soil erosion from desiccation. Only a minority of candidates interpreted the verb ‘monitored’ correctly as observing and checking impacts. Most took it to mean solving the problems they had just identified. Some good responses were seen however on techniques to measure changes regularly, such as monthly, by counting or estimating fish stocks or surveying trees in salinity-sensitive forests for changes in leaf colour. With a reserve of only 2 marks, if a candidate did misinterpret the word ‘monitored’, it made for only a small loss of potential credit.

- (b) Beyond a number of superficial responses with little or no exemplar support, the quality of responses was sound to good. Many candidates know this topic well and use a great range of degraded environments as examples. One of the difficulties of assessment was the scale of the example chosen. A few were too large to handle effectively, such as tropical rainforest at the global scale, whereas the Amazon rainforest in Brazil or another named forest environment was appropriate. In some cases the example was of too small a scale to allow for the depth of discussion and development of assessment anticipated for a higher quality response. For example, one named and located rubbish (garbage) dump, though relevant as a case study, yielded responses that were just too brief. Candidates identified political factors well. These could be operative at a number of scales from the local, through regional and national governments, to the international community and bodies such as the EU or UN, where funding was involved, for example. Few candidates managed to assess 'other factors' well, even where these other factors, such as the attitudes of local people, or commercial interests, had been identified clearly in the more narrative sections of the response.

Global interdependence

Question 5

- (a) Answers ranged in quality from those which simply rewrote in narrative form the information contained in Figs 3A and 3B, to those which produced a suggested explanation for the dominance of the three ports based on factors in a number of dimensions. These dimensions could be physical, such as the availability of deepwater or building land; social, such as population size or a port's reputation; economic, such as economies of scale or the management of profitable port enterprises over a long time period; or political, such as national policy or EU policy. Some candidates made good use of the specialisation of the three ports in different types of cargo (liquid bulk, dry bulk and general cargo) shown in Fig. 3A. Few made any reference to the several minor ports also shown on the map, although the key word 'dominance' in the question suggested that this would assist answer quality. The issue of lack of knowledge of Ireland is covered at the end of the **General comments**.
- (b) Countries are neither all-powerful or simply victims in terms of the control of trade and as such, candidates took and argued for some middle position, suggesting that some factors could be controlled by a country, such as the tariffs they imposed on imports, but that others could not, such as trade embargoes, natural hazards or changes in the global market for a key export. Most candidates restricted their writing to visible trade, but some astute candidates recognised that invisible trade, notably tourism with its issues of fashionability and instability, could be included. Most candidates focused on economic and political circumstances external to the country as being uncontrollable, but some candidates, made reference to internal circumstances, for example the political instability arising from civil war in an African country, or trade dependent on a narrow agricultural export base being decimated by hurricanes in the Caribbean. The assessment, if offered, was generally couched in terms of economically more powerful countries, such as the USA, being in a stronger position to dictate terms of trade both on their own and in terms of their influential position on international bodies such as the G8 or World Trade Organization (WTO). This was compared to the weaker economic voice of LEDCs with limited influence and a more limited export base, often dominated by primary products.

Question 6

This was the most popular question on the paper. Many responses showed a considerable disparity in quality between part (a), which was based on understanding and skills, and part (b), with its higher knowledge demand.

- (a) Sub-part (i) was answered better than sub-part (ii) as many candidates failed to grasp the background to the survey.

- (i) Most candidates saw the impacts of tourism as mixed and supported this with evidence from all three parts of Table 1: economic, social and environmental. Weaker responses showed evidence that many candidates had limited data skills as the nature of the percentage data was not understood. So for instance, they would write that the price of goods and services had got worse by 14.1%, rather than that 14.1% residents responded that they perceived that the price of goods and services had worsened. Some candidates simply rewrote or listed the data in Table 1 rather than offering any analysis of it. Others probably started to write too soon, before they had looked at Table 1 sufficiently carefully. Such responses tended to have a lot of crossing out or spend too much time on the first few rows of the table without reaching the entries lower down. In addition to good use of the evidence, top responses often observed firstly, that responses to the economic questions were much less mixed than those to the social ones, secondly, that no resident said '*Much worse*' for any element and thirdly that the '*Do not know*' column had significance in relation to environmental impacts.
- (ii) Examiners noted with concern that only some candidates appreciated enough about surveys and their conduct, which are fundamental to the nature of geography, to make an effective response here. Many simply wanted to try to explain the impacts of tourism which they had identified in (i), rather than address 'the variety of residents' responses' as asked. A full answer required the explanation of two or more background factors such as age, socio-economic status or residential location within Cat Ba and some understanding of how surveys work, for example, in terms of respondents' experience of tourism or their lack of it, mistrust, honest and dishonest responses, or simply guessing.
- (b) Beyond superficial and descriptive responses, some of which were about tourism in general, Examiners noted how the understanding and appreciation of tourism today has changed. Some candidates used the negative environmental impacts of tourism as a context for, or introduction, to explaining some of the positive ones. These could be conceptualised both as the absence of the negative, for example, not harming fragile ecosystems such as coral reefs, or working to limit tourist numbers in some destinations, and the explicitly positive, for example environmental protection or general "beautification" of resort areas through schemes such as landscaping or tree planting. Eco-tourism featured prominently in the responses, both generally and in terms of some detailed coverage of well-documented locations such as Xcaret, Mexico, or the Monteverde Cloud Forest, Costa Rica. Better quality responses tended to articulate clearly the link between the environment as a resource and potential revenue from tourism as a sector. This may motivate governments, tourism operators and local people to protect the environment and seek a sustainable future as income depends, in part, on it as an attraction. Some candidates used the life cycle model of tourism to demonstrate how in the rejuvenation phase, improving degraded environments, whether low quality or derelict buildings or polluted beaches, is fundamental. Spain's Costa del Sol is a classic case of such environmental improvement in terms of its Blue Flag Beaches. Many candidates had a wider awareness of tourism's positive environmental impacts such as "looking after monuments" or "protecting wildlife" than the detail or the examples to support these statements.

Economic transition

Question 7

Whilst there were some sound responses to (a), candidates found part (b) challenging to respond to except in terms of constraints on development.

- (a) Candidates usually understood what was meant by the primary sector, but few defined it as involving the extractive activities of agriculture, mining, fishing and forestry. Some only saw it in terms of the production of raw materials for secondary (manufacturing) industry which limited the contribution of agriculture considerably. Most responses tended to be rather basic and to consist of simple observations about employment, contribution to GDP, food supply and raw materials for export and, perhaps, as the basis for some industrialisation. Better quality responses offered some exemplar support for these ways, from their own or other countries. It was highly creditable to recognise the fundamental contribution of the primary sector in LEDCs to development and the growth of a more diversified economy, not only the secondary sector but also the tertiary (service) sector, including developments in transport, trading and retail. A few candidates made reference helpfully to development theories such as Rostow's.

- (b)** Whilst most candidates saw development as a series of stages or as a continuum, much of the discussion was superficial and did not match the real world. There was a tendency for some candidates to focus on the rights of LEDCs to endless development in the manner that the USA and some EU countries are seen to have enjoyed. Development was seen largely in economic terms with the focus on technology and innovation and little attention was paid to social development, for example in education or healthcare, or to political development. Many candidates focused on the constraints on further development which LEDCs experience and how these constraints operate. Constraints could be physical, such as extreme climate or limited resource endowment; social, such as language or tribalism; economic, such as debt or limited potential to attract foreign direct investment (FDI); or political, such as instability and corruption. There was some good consideration of setbacks to development in MEDCs, notably the role of events like 9/11 in bringing an economic downturn and the way in which environmental concerns may change priorities and limit production. The role of globalisation and the experience of NICs were productive areas for consideration in terms of 'endless development'. Very few responses included robust reference to social and economic inequalities within MEDCs that need to be addressed as they continue to develop.

Question 8

This question was less popular than **Question 7** and tended to be chosen by two groups of candidates: those who had little or no knowledge of the measure and mapping method in **(a)** but who wanted to answer **(b)**; and those who were well-prepared. Consequently responses tended to be either weak or satisfactory to very good. Candidates handled the element of assessment suitably.

- (a) (i)** Better candidates addressed both GDP as a measure of inequality and the element of the PPP adjustment. Weaker candidates tended to try to define GDP or to repeat the explanatory sentence printed under Fig. 5. Many recognised GDP as a standard measure but as quite limited, for instance in masking inequalities in income within society or in not registering subsistence production and the informal sector which are of great significance economically and socially in many LEDCs. PPP was seen as a welcome refinement to GDP in attempting to take costs and the relative strength of currencies into account.
- (ii)** Even candidates with limited understanding of **(a)(i)**, were able to gain some credit here by responding to the stimulus of Fig. 5 and stating the more obvious strengths of the mapping technique, such as its visual clarity. Better candidates were also able to recognise some of its limitations, such as the lack of retrievable data or the clustering of countries into regions, many of which are quite varied economically and some supported these comments with named examples and, perhaps, simple data.
- (b)** Most candidates responded to this appropriately and at the correct global scale and referred to 'different world regions' as asked. At the lower end this tended to be quite broad and in name only "e.g. Asia", but there were well substantiated responses, which identified groups of countries such as OPEC or NICs and which could, beyond that, identify inequalities within the named groups. Many candidates began with differences in resource endowment and global location and built up a response considering other key factors such as population dynamic, political regime and stability, level of technological development and stage of the development process. Frequent mention was made of the influence of past colonialism and present neo-colonialism in holding back the development of LEDCs. Some linked this to issues of debt, aid and global trading conditions where manufactured goods are more favourably priced than raw materials etc. Examiners noted that the overall quality of responses depended not so much on the range of reasons introduced, for a lot of candidates showed awareness and a global perspective, but on the extent to which the answer was well structured and supported. High quality responses did not need to be comprehensive, given the nature of the topic, but did demonstrate the interrelationships between factors and the dynamics of change in an increasingly globalised world.