

GEOGRAPHY

Paper 0460/11

Paper 11

General comments

The examination was considered appropriate for the ability range of candidates and a high level of differentiation was achieved throughout.

Some excellent responses were seen to all questions (whichever were opted for) and capable candidates were able to show their level of ability and gain high grades, however the quality of responses from some candidates was a little disappointing.

The more structured questions worth fewer marks allowed all candidates to achieve positively likewise, questions referring to source materials provided all candidates with positive opportunities to gain marks and source material was generally well used.

Inevitably there were candidates who performed poorly in the examination, this may be due to a variety of factors i.e. they were poorly prepared for this type of examination, lack of effort and/or understanding or linguistic difficulties in understanding the question fully in another language.

Some candidates use geographical terminology appropriately and confidently and are able to recall case studies in detail, particularly when they are case studies local to them or from within their own country. Nevertheless there are still many candidates who fail to give place specific information in order to gain the full Level 3 marks (having given some very detailed Level 2 responses). Level 3 responses were unusual and Level 1 was often scored, even by good candidates, as points were not developed. Weaker candidates tended to list their responses in bullet point form or short sentences, and as a result did not gain more than Level 1.

The most popular questions selected were 1, 2 and 5 or 6. The paper produced a range of marks, though there were relatively few high marks where candidates produced excellent answers throughout. Nevertheless there were some marks in the 50's and 60's and almost all candidates made a genuine attempt at the paper, the main range of marks being 30's and 40's.

There were few rubric errors, however the handwriting, from some candidates, was so poor in some cases that it was impossible to read all parts.

The following items of general advice, which have been provided previously in this report, need to be given to future candidates who should:

- make the choice of questions with care, ensuring that for each question they choose they have a named case study about which they can write in detail and with confidence.
- answer the three chosen questions in order, starting with the one with which they are the most confident, and finishing with the one with which they are least confident (in case they run out of time).
- read the entire question first before answering any part, in order to decide which section requires which information to avoid repetition of answers.
- highlight the command words and possibly other key words so that answers are always relevant to the question.
- use the mark allocations in brackets as a guide to the amount of detail or number of responses required, not devoting too much time to those questions worth few marks, but ensuring that those worth more marks are answered in sufficient detail.
- consider carefully their answers to the case studies and ensure that the focus of each response is correct, rather than including all facts about the chosen topic or area, developing each point fully rather than writing extensive lists of simple, basic points. It is better to fully develop three ideas rather than write extensive lists consisting of numerous simple points.

- study the resources such as maps, graphs, diagrams and extracts carefully, using appropriate data and statistics derived from resources to back up an answer and interpreting them with appropriate comments, rather than just copying parts of them.

The following detailed comments for individual questions will focus upon candidates' strengths and weaknesses and are intended to help centres better prepare their candidates for future examinations.

Comments on specific questions:

Question 1

This was by far the most popular question selected by candidates and often the highest scoring one.

- (a) (i) The vast majority of candidates answered this correctly. The correct order being Shandong, Guizhou, Qinghai. A small percentage of candidates reversed the order of Guizhou and Qinghai.
- (ii) Almost all candidates knew how to calculate population density and most used calculators to give an accurate answer. A few did not show their calculations as instructed and lost a mark. Some candidates arrived at the correct answer but in a different way to simply dividing the number of people by the area i.e. $60 \text{ million} / 187 \text{ 400} = 320.17 (.2)$.
- (iii) Many candidates made correct references to the difficulty of building houses and communications on steep slopes and elements of climate/soils which result in low population density. This part was generally well answered though some irrelevance or vague statements were included. Weaker candidates often eluded to an idea but did not develop the point far enough to gain the mark e.g. 'slopes are steep' or 'poor climate' needs to be developed further to gain the mark as follows: 'Climate is often cold or icy conditions' or 'slopes are steep which makes them difficult to build on'. The vast majority of candidates scored 2 out of a possible 3 marks.
- (iv) This part was generally well answered, many scoring 3 or 4 marks with reference to mark scheme ideas. Most popular responses were achieved for jobs, ports tourism and fishing references.
- (b) (i) Whilst there was some misunderstanding of what "underpopulation" meant the most common relevant point made was "not enough people for the jobs", followed by 'resources not being fully exploited'. Many candidates felt that there would be a surplus of goods as there would be insufficient demand from the population as output would continue at the same level, (if there were more people). However, most candidates scored 2 or 3 marks.
- (ii) This part was generally well answered with lots of full mark answers showing a good understanding by most candidates. Inevitably there was some misunderstanding of what "overpopulation" meant. Common errors were pollution without the type, or a list prefaced with worse 'e.g. worse education, health etc.' rather than 'poor access to education or healthcare' or 'air pollution'.
- (c) Most candidates chose Mexico to USA with some selecting Turks moving to Germany. Few candidates failed to score at least 3 marks by making 3 appropriate simple statements. Too many did not go beyond that though, many simply writing an opposite list of pushes and pulls, neither showing any valid development. Most common responses were 'more jobs available' better quality of life' and 'better services e.g. Schools/hospitals'.

Question 2

This question proved to be the second most popular choice on the paper by candidates with a varying degree of success in responses.

- (a) (i) Some candidates repeated the word 'influence' in their response however in general the term was fairly well known. There were references to the distance people travelled which were accepted, however, candidates should know that sphere of influence is 'the area where people live who use the service'.

- (ii) Many candidates scored both marks although some did not give precise enough answers. A 'supermarket' could be low or middle order depending on its size, a 'shop' or 'school' could be low or middle). Examples of high order services given were sometimes middle order. Hence the candidates were vague in their responses e.g. market, School, car/jewellery without the rest to get the mark, i.e. primary School, car showroom.
 - (iii) This question was generally not well answered as few candidates really knew what 'threshold population' meant and generally answers were weak. The first two lines of the mark scheme were the most common correct answers. There was little reference to frequency of use, small proportion of population using it or the specialist nature of high order services.
- (b)(i) This was generally well answered with the vast majority of candidates scoring the full three marks. However, a small minority of candidates simply quoted services from the key without checking whether they were actually on the map e.g. 'museum/church'.
- (ii) Most candidates scored at least one or two marks here, referring to the expressway and the presence of the various services listed in the mark scheme or parks and plazas. However, the gridiron pattern was rarely mentioned and few candidates discussed traffic intersections.
 - (iii) There were many reasonable attempts to this question but few candidates developed their answers, most achieved marks from single points. The most common answers were 'deforestation', 'animals killed' with too many stating 'pollution' without the type. Marks were lost by references to global warming and acid rain despite the local focus of the question. Also some references were made to people and not the natural environment but overall this was not a common error.
- (c) This was generally not well answered. Many candidates did not give the basic ideas of why settlements originally develop and the factors affecting growth as and there was little development of ideas hence, most candidates scored within Level 1.

The most common way in which candidates developed a point was to refer to rural to urban migration and explain the pushes/pulls, which whilst not the intention of the question seemed to be a valid approach. A few wrote about a tourist settlement, explaining its growth by reference to tourism, which was equally valid. Some of the better responses referred to Rio de Janeiro or another South American city with varying levels of success. These responses explained how the settlement had originally developed due to flat land near the coast, which enabled the development of roads and route centres enabling the growth of industry. This coupled with the location of a deep harbour/ports enabling raw materials to be imported and finished products to be exported led to the settlements growth. Other ideas may include the development of the tourist industry due to the attraction of beaches e.g. Copacabana beach. Other place specific information could include the names of ports/harbours/rivers/roads etc. Many candidates suggested that settlements had grown due to the development of services e.g. Schools, hospitals, shops etc. Whilst it is recognised that these serve as pull factors attracting migrants to these areas they are not the reasons why a settlement has grown.

Question 3

This did not tend to be a popular choice by candidates. Those who attempted it tended to score well on the earlier parts of the question but less so on the case study.

- (a)(i) The vast majority of candidates answered correctly with the range being allowed between 50 and 60 metres.
- (ii) Most candidates scored one or both marks, usually for reference to soft cliff materials and either lack of protection or large waves.
- (iii) Most candidates scored at least two out of the possible three marks available. The most popular responses referred to the need to evacuate and the destruction of houses, the hotel or shop only a minority of candidates referred to loss of income from tourists or the loss of part of the car park.
- (iv) Most were able to name two processes although a number incorrectly named longshore drift as one of them. Fewer candidates successfully described the processes. Some candidates mixed up corrasion and corrosion.

- (b)(i) Candidates usually achieved two marks by reference for example to the north and south. However, too many candidates focused upon where there were no coral reefs, which was an acceptable approach.
- (ii) This was generally well answered by many candidates though some failed to develop the basic ideas and did not score full marks as they did not make sufficient points. Once again there was some use of negatives which was not acceptable and some candidates included explanation which was not relevant. Most candidates had a correct basic knowledge of the conditions required for the development of a coral reef.
- (c) This part was generally not well answered with very few candidates giving a named example. Responses tended to be vague, simple statements and in many cases were repetitive. Those candidates who included a labelled diagram merely repeated what they had already stated in their written text.

Those candidates who chose spits were marginally more successful than those who wrote about sand dunes as they were able to develop the longshore drift idea and get into Level 2. Few candidates got beyond four marks.

A good response for the development of a spit would explain how spits develop where there is a break in the coastline or a change in the shape of the coastline (i.e. across a river estuary or from a headland) and a drop in energy meaning that longshore drift will deposit material at a faster rate than it can be removed and gradually a ridge is built up (Level 2). As candidates refer to the process of longshore drift moving materials in the direction of the prevailing wind and develop their answer a labelled diagram could show this, but candidates should remember to label swash, backwash, direction of movement and prevailing wind, (Level 2). Overtime as the materials are deposited along the shoreline they build up until it is above sea level and this will continue until deposition can no longer occur due to either deeper water or the presence of a river mouth where the materials will be washed away faster than they can be deposited (Level 2). Often a 'hooked or curved' end may develop due to a change in prevailing wind direction (Level 2). A named example could be Spurn Head, Holderness in the UK but any local example would be acceptable. The diagrams would replace the need for place specific information but candidates could name the river estuary or beach/headland that they are referring to.

Question 4

This question was more popular than **Question 3** but not as popular as **Questions 1, 2, 5 and 6**.

- (a)(i) Virtually everyone answered this correctly, identifying SW USA, Sahara, Thar or Arabian. A small minority of candidates incorrectly named the Atacama.
- (ii) This part was generally well answered with the majority of candidates scoring marks for 'in South America' and in the 'Southern hemisphere'.
- (iii) The majority of candidates were able to describe the temperature differences and gain two marks but surprisingly few were able to explain and give a valid reason to gain the full three marks.
- (iv) This was a poorly answered question as few knew why it was dry. A few made appropriate reference to mark scheme ideas particularly 'rain shadow' or 'high pressure' ideas. Very few candidates gained more than one or two marks and there were a lot of vague and irrelevant statements.
- (b)(i) Generally well answered, most candidates correctly focused on the vegetation and commented on the cacti, date palms etc. A few included irrelevant details of things which could not be seen like the roots, whilst others included explanation which would have been appropriate in the next question.
- (ii) Reasonably well answered, almost all candidates scored some marks, commonly for reference to ideas such as the spikes, the long roots and the ability to store water. Most candidates did attempt to link climatic and vegetation features and attempted to explain the relationship as the question asked. However, weaker candidates did not make this link and many scored one or two marks.

- (c) In many cases a desert was named but few candidates were able to name correct activities in the desert and then link to the correct environmental conditions. Generally responses were simple ones at Level 1 with virtually no responses gaining Level 3. Many candidates mentioned agriculture, the Sahel, chopping trees down etc. which were clearly not focused on a desert region, some candidates responses were more relevant to a tropical rainforest. The best answers related to overgrazing or tourism with some responses referring to Las Vegas but even so these were often simplistic Level 1 statements.

Question 5

This question proved to be the second/third most popular choice by candidates and was generally quite well answered, including the case study.

- (a) (i) Mainly correct most candidates understood the term 'processes' and correctly stated that it is 'the methods used to convert raw materials into finished products'.
- (ii) Virtually all candidates gained the full two marks for this question correctly identifying an input and an output.
- (iii) This part was generally well answered with the most common responses referring to various types of pollution and loss of vegetation/habitat etc. However, some candidates stated pollution without making clear which types of pollution they were referring to i.e. visual pollution/air pollution/groundwater pollution.
- (iv) Many candidates scored at least two marks but few gained three or the full four marks. Candidates appeared not to fully understand what governments can do as opposed to what an industry can do e.g. create jobs. The most common responses referred to subsidies, tax incentives and various infrastructural improvements.
- (b) (i) Some candidates misunderstood this question and wrote about why the manufacturing industry developed in the area shown (i.e. the answer to the next question). Those who understood the question generally got a mark for employment – better candidates included other ideas such as development of infrastructure (or examples) or improvements in quality of life. Some references were made to economic growth, however, these were not developed with regard to benefits of this for people.
- (ii) This part question was generally well answered by most candidates as they effectively used the map and diagram. Almost all of the mark scheme ideas were covered by candidates. However, many candidates would have benefited from developing their points a little more, some of which were so brief that they received no credit (e.g. a big city nearby, near the coast). Those who scored marks for correctly expressed ideas could have gained more marks for developing them (e.g. near the iron ore (1 mark) so that transport costs of this bulky raw material are kept low (+1 more mark for development)). Those candidates who wrote about the availability of a workforce in Kolkata, especially as they can travel daily to Bokaro by rail, would appear not to have looked at the scale of the map.
- (c) There were some good responses to this case study question, with some at Level 3, but generally candidates did not develop their ideas and thus many scored Level 1 for basic ideas. Many chose appropriate examples from within their own country (or continent) but even so they did not really do justice to themselves. Others chose Costa del Sol from the textbook with the same end results – usually top Level 1. Some candidates wrote about a local ecotourism location in the rainforest and whilst this choice was perfect the problem was that the answers were no more than – 'wildlife, jungle and local culture'. Some candidates chose a country (usually Kenya) – whilst some did try to develop their answers they were restricted to Level 2 (5 marks) by their choice of a country.

A good example often selected was Machu Picchu located in Peru high in the Andes. Candidates discussed how tourism had developed due to visiting the historic and cultural sites such as temples, the palace and the huge sundial dated back to ancient times of around 1450 (Level 2). They also referred to following the Inca Trail (which would be classed as place specific detail) leading from Cuzco south of Machu Picchu (Level 2). The physical attractions include a mild climate but the best time to visit is during the dry season between December and March as temperatures range between 16 and 28 degrees celsius, this is when most visitors go (Level 2), the scenic beauty of the mountains and jungle including the wildlife e.g. tropical birds etc. (Level 2).

Also the opportunity to experience a unique culture and heritage along the Inca trail and visit traditional Inca homes (Level 2). These are just a few examples of good Level 2 responses. The candidate has developed ideas beyond the basic Level 1 statements and has used place specific detail, including reference to both human and physical attractions.

Question 6

Probably the third/fourth most popular choice by candidates and generally well answered in the earlier sections but not so well answered for the case study.

- (a) (i) Generally well answered with candidates giving mainly correct definitions, just a few defined by reference to scale instead of use of the output.
 - (ii) Again generally well answered with the vast majority of candidates correctly selecting photograph C.
 - (iii) Responses to this part were more variable. Many candidates gained a mark for larger scale for E, others for D is subsistence whereas E is commercial. few referred to different crop types. There were many intensive/extensive answers which were not valid. A few compared the wrong pair of photos.
- (b) (i) Generally well answered, most candidates scored the reserve mark for recognising an increase in Africa but a decrease in Asia and many got at least one mark for a correct pair of statistics.
 - (ii) Many good points were made here, most candidates scored at least two or three marks for references to drought, flooding and infertile soils being common correct responses. Weaker candidates vaguely referred to the 'weather' or 'rain' or 'high temperatures' which was not enough for credit, whilst others (not too many though) wrote about human factors rather than the natural environment.
 - (iii) This question differentiated well, most candidates scored a mark for simple ideas like 'more food to eat' or 'food to sell' whilst stronger candidates went on to develop their answers in relation to various aspects of quality of life or potential investments which they could make on their farms with the money obtained from sales of surplus products.
- (c) Most candidates chose an appropriate example and could simply identify inputs, processes and outputs in basic undeveloped lists gaining top end Level 1. A few tried to develop their ideas but very few candidates reached Level 3.

An example of a good response would be shifting cultivation in the Amazon Rainforest, Brazil. Processes would include clearing the land by slash and burn where simple hand tools i.e. machetes are used to cut down the rainforest vegetation, which is then burnt to add fertiliser to the soil (Level 2).

The soil would then be turned over by hand (simple ploughing) and the seeds would then be planted. The area would be watered and weeded daily by hand using simple hand tools until the crops are ready to be harvested. The crops would be harvested using a sickle (Level 2). The outputs would be vegetables including root vegetables such as manioc (Level 2). The manioc can be used as a vegetable or ground up to make flour and the leaves from the bush can be eaten too so hardly anything is wasted (Level 2). The crops would be for their own consumption to feed the family/tribe and not for sale. (Level 2) This process would then start all over again and after approximately 3 years when the soil loses its fertility the family/tribe would move on clearing another plot of land allowing the previous plot to be reclaimed by nature returning to its original vegetation (Level 2).

GEOGRAPHY

Paper 0460/12

Paper 12

General comments

The paper was regarded as being appropriate for the ability range of candidates as it allowed widespread differentiation. Nearly all candidates attempted, and completed, three questions and there were relatively few instances of rubric contraventions. Where they did occur it was often in smaller Centres, where many candidates attempted more than three questions.

Question 1 was the most popular by far and **Question 3** was the least popular, the other four questions varied in popularity, according to Centre. Generally **Question 1** was the highest scoring, with **Questions 2** and **4** the lowest scoring, however, irrespective of their popularity and general performance, excellent answers were seen to all questions. Whatever combination of questions candidates chose, there were plenty of opportunities for candidates to demonstrate their skills, knowledge and understanding. There is much evidence that excellent geographical learning is taking place in many Centres. Sound practice was demonstrated by those candidates whose answers were focused, and written in complete sentences, showing good development of ideas where appropriate in longer answers and using specialist terms where that was possible. In contrast candidates who did not achieve so much success sometimes misinterpreted questions or the command words and/or key words. Others lost marks where extended writing was required, particularly in case studies, where their answers were too short with ideas which were lacking in development and place specific detail.

The detailed comments on questions below highlight the strengths and weaknesses of candidates. Careful consideration of these comments and the advice therein should be invaluable in preparing candidates for future examinations.

The following items of general advice, which have been given before should be shared with future candidates.

- Choose your three questions with care, ensuring that for each of the three questions chosen you have a named example of a case study about which you can write in detail and with confidence in the final sub-question.
- answer your three questions in order, starting with the one with which you are the most confident, and finishing with the one with which you are least confident (in case you run out of time).
- read the whole question first before answering any part, in order to decide which section requires which information, to avoid repetition of answers.
- highlight the command words and other key words so that answers are always relevant.
- use the mark allocations in brackets as a guide to the amount of detail required.
- think carefully about your answers to the case studies and make sure that the focus of each response is correct, rather than including all facts about the chosen topic or area. Develop each point fully rather than writing brief lists of simple points. It is better to fully develop three ideas rather than write long lists of simple points.
- study the resources such as maps, graphs, diagrams and extracts carefully, using appropriate facts and statistics from resources to back up an answer and interpreting them by making appropriate comments, rather than just copying them.

Comments on specific questions

Question 1

- (a) (i) Answers were almost 100% accurate.

- (ii) In A although some candidates correctly stated that an economy such as the UK would have more factory work than farm work, others wrongly explained the difference by reference to education. This was more appropriate in B where most correctly stated that the Poles would not be qualified to teach or have language problems if they were to do so. A minority of candidates stated that the Poles were uneducated which is not true.
 - (iii) Many candidates could see that emigration was generally higher than immigration. A few astute candidates spotted general trends such as the greater fluctuation of emigration than immigration, the equal numbers in 2004 and the fact that emigration was roughly three times higher in 2006. In contrast a significant minority of candidates simply listed population figures for individual years with no interpretation of them, which is an approach which gains no credit.
 - (iv) The question was well answered with most candidates focussing on jobs, housing, culture and xenophobia. Whilst the question related to migrants such as those from Poland to the UK (which are both MEDCs) many candidates expressed ideas which would be more valid for migrants from an LEDC to an MEDC. Nevertheless this approach was credited, providing the problems were valid for the destination country. However a common error of weaker candidates was the incorrect focus on problems faced by people remaining in the country which the migrants have left, in this case Poland.
- (b)(i) Many candidates scored highly on this section. Although not all used their own words, most could extract issues of high unemployment, low wages and the search for better living standards from the article.
- (ii) There were many good and wide-ranging answers, including development of many different social and economic ideas. A minority wrongly referred to possible outcomes in the destination country. Reference to negative multiplier effects were popular and often fully developed, though candidates should beware of over-exaggerating. Some considered the likely effect to be that all children and elderly would be forced to work and that birth rate would fall drastically, or that the effects of depopulation on Poland would reach the extent that the country would become an LEDC because no workers were left.
- (c) A case study of international migration was well-known to most candidates, although many answers would have benefited from the inclusion of place specific detail. The most common examples were Zimbabwe to South Africa, Mexico to USA and Turkey to Germany. There was a great emphasis on negative impacts of squatter settlements, employment competition, demand for health services, and increase in crime. Fewer benefits to the destination country were discussed in detail. Characteristic mistakes made by weaker candidates were to focus on reasons for migration, problems faced by of the migrant population, or the country which the migrants had left.

Question 2

- (a)(i) Most candidates correctly identified the relationship.
- (ii) Whilst clarity of expression was sometimes a problem most got at least one idea, such as settlements being 'far apart' or being 'separated by farmland'. The ideas may have been derived from knowledge or the resource provided.
- (iii) The question discriminated well. Weaker candidates usually recognised only the difference in the number of services or focused on differences unrelated to services (e.g. in building style or employment), whereas stronger candidates included reference to level of services and sphere of influence. Many answers did not directly compare the services but detailed them in two sections and left the Examiner to make the comparison. Candidates could answer by reference to examples, however in order to gain credit they had to give comparative examples from villages and cities (e.g. in a village there may be a clinic but in a city there is likely to be a hospital).
- (iv) Success in answering this question was dependent on a knowledge of the term 'sphere of influence' and a recognition that the focus was on the capital city. Whilst some excellent answers were seen which considered issues such as the order of services, the specialist nature of services and the focus of the transport network on the capital city, many weaker candidates did little more than list services typical of capital cities or mention tourism and government services which served a wide area. There was some repetition of answers from (iii), including the irrelevant ideas of more

services, large population size and employment opportunities. The required focus on the city was missed by some candidates.

- (b)(i) It is good practice to refer to distance and/or direction from other named features when describing a location, however most candidates scored just one mark by vague reference to the shopping centre being near/next to/close to the School or expressway. 'Near to' was only credited once, to gain more marks candidates needed to be more precise. Some candidates gave reasons for the location of the shopping centre which is not what the question asked for.
- (ii) There were many wide-ranging answers which showed good understanding of the factors influencing the location of new Centres in the suburbs – lack of competition, more space, lower cost land and proximity/easy access to a large and growing market were common answers, some being well developed for additional credit. Some candidates concentrated on negative points about a location in the CBD rather than the positive attributes of the suburbs, however this approach was accepted. Some candidates incorrectly focused on the advantages of the location to the shoppers.
- (c) The concept of the rural-urban fringe was not always fully understood therefore some candidates focused incorrectly on rural problems or on the effects of growth in the city overall rather than the rural-urban fringe. The most common examples were of shanty town developments in LEDCs, notably in South Africa. There were relatively few examples taken from MEDCs. There was a general focus on social rather than environmental problems and generally there was little place specific detail.

Question 3

- (a)(i) There were some good attempts at this definition, the critical point being the fact that the headland sticks out into the sea. It was not sufficient to just state that it was an area of hard rock.
- (ii) Most candidates gave correct answers, although a minority did mix up the two features and some thought B was a stack.
- (iii) Most candidates correctly named three processes. A few described types of erosion instead of naming them.
- (iv) Many candidates had a good understanding of the processes resulting in bay and headland formation and scored high marks. Most could link weak/hard rocks with different rates of erosion and many included a labelled diagram in their answer, which complimented their written text to explain the formation. Some candidates simply described erosional processes, an approach which by itself gained no credit.
- (b)(i) Few candidates made a good comparison of location. The main ideas should have focused on proximity to the sea, and a coastal compared with an estuarine location. Many candidates included incorrect reference to the height of the land and/or some wrote about one of the features rather than making a comparison.
- (ii) Terms such as deposition, shelter and shallow water appeared in some answers but they never really amounted to a coherent and full explanation for the development of a coastal marsh. Candidates need to understand that the formation of salt marsh results from deposition in a sheltered estuarine environment and they should be able to develop these ideas. Indeed too many candidates answered about either the formation of a spit, sand dunes or a coral reef.
- (c) Many candidates knew an appropriate example of a delta, the most commonly named being the Nile. There were examples of excellent developed answers which included specific details, good terminology and a labelled diagram. Weaker candidates made one of two errors, they described processes and landforms found throughout the lower course of a river, or they described different types of delta, with accurate but irrelevant diagrams, rather than explaining their formation.

Question 4

- (a) (i) Most candidates gave the correct answer, October.
- (ii) Many candidates correctly calculated the range of temperature. However, nearly all candidates calculated the monthly average rainfall by dividing the correct answer by twelve, rather than leaving their answer as the average annual rainfall.
- (iii) A minority of well prepared candidates had a clear understanding of the reasons for high temperatures, relating their answers to issues such as the angle of the sun and/ or the lack of cloud cover. Some candidates described the temperatures rather than attempting an explanation. Relatively few candidates gave correct responses, many attempting to relate high temperatures to the lack of rainfall.
- (iv) Similarly answers explaining the reasons for low annual rainfall were generally weak, despite the occasional excellent references to high pressure, prevailing winds or distance from the ocean. The big picture and large-scale reasons were missed completely though a few did allude to rain shadow effects and ocean currents. Again many candidates made the mistake of describing the low rainfall pattern or focussing on high temperatures/the overhead sun or on lack of vegetation which are not appropriate explanations for lack of rainfall. Indeed many referred to a location 'on the Equator' and 'high evaporation' which would conversely result in high rainfall totals.
- (b) (i) Most candidates identified some differences in vegetation, however they were usually identified in two separate sections or a table with the Examiner having to make the comparison. Some described the photographs in detail, including rock and soil types, rather than just vegetation.
- (ii) There were many good and wide-ranging answers, and many candidates scored full marks on this section. The ideas had been well-learned and included developed details of leaf structure, stomata and tap roots.
- (c) Many candidates gave basic answers rather than developing their ideas and including details of the impacts of human activities on their chosen desert. Consequently many answers were only credited as being in level 1, usually for simple description of human activity in the desert, most commonly the Sahara. The most common activities described were overgrazing, mining, urban development and tourism. A common misinterpretation of the question was to focus on the risk to people rather than the risk from people. Consequently candidates focused on the hostility of the desert environment for human activity. Also there were some responses about the impact of human activities on the Sahel and the tropical rainforest rather than the desert. Activities such as desertification, overcultivation and deforestation are hardly relevant to any region of desert and did not gain credit.

Question 5

- (a) (i) The majority of answers were accurate.
- (ii) Most candidates recognised that nuclear power in France was more important than Germany and gave acceptable comparative figures, though some included irrelevant explanation.
- (iii) Many candidates gave three valid reasons to explain the relative importance of nuclear power. The most popular ideas were level of development, affordability, risk factors and the availability of alternative resources.
- (iv) Most candidates attempted to give some disadvantages and advantages, however, weaker answers were characterised by vagueness of response (e.g. explosions, dangerous, lot of power, cheaper and efficient). These ideas needed to be developed to gain credit. There was some confusion over its advantages and disadvantages. Some thought it was expensive without qualification (it is the building and maintenance which is expensive, the production costs are relatively low); some thought it was dangerous, without qualifying this in any way, and some stated that it was non-renewable and contributed to greenhouse gases. Others thought a disadvantage was that it would explode and over emphasised the danger to the environment, whilst in reality nuclear power poses little environmental risk in comparison with fossil fuels.

- (b)(i) This question was answered far better than the similar question about location in 2009. Most candidates accurately included details of distance and direction from named places, such as Budapest, in their answers. Some candidates went on to suggest reasons for the location, but these for this question were not relevant and were often repeated in (ii). As stated in the general advice at the beginning of this report, candidates would be wise to read all parts of their chosen questions before embarking on their answers.
- (ii) There were many comprehensive answers including a range of factors, most commonly distance from settlements, land and space requirements and water for cooling. Candidates need to be aware that the availability of a large workforce and proximity to raw materials are not relevant in the case of nuclear power, as the workforce is likely to be small once the power station is running and the raw material, uranium, is required only in small amounts. Whilst distance from large centres of population is a relevant locational factor, few candidates developed this idea correctly, emphasising instead that these power stations 'WILL pollute' and 'WILL explode'. It is the perception of the danger of radiation and likely public response which explains distance from large areas of population, not the inherent danger to people or the environment.
- (c) The case studies chosen by candidates were varied and wide-ranging. The most common energy sources were coal and oil, or the use of wood as a fuel, although examples of the impacts of other energy sources, such as HEP and geothermal energy, were seen and credited. Some candidates chose nuclear energy which was acceptable, however the effects had to focus on the natural environment rather than on people. Environmental effects were considered and accepted at local and global scales. There were many general answers (some covering the impacts of a variety of energy sources) and candidates need to ensure that as well as stating clearly the form of energy they are writing about they should qualify any references to 'pollution' which they make. The most common place specific case studies were coal mining in South Africa and Zimbabwe and oil drilling in the Gulf of Mexico and Alaska. Those candidates who chose wind power or solar power, despite them being marketed as not having major effects on the natural environment, not surprisingly struggled to suggest many real threats beyond noise and visual issues, which are superficial effects rather than real threats.

Question 6

- (a)(i) Most candidates identified the correct photograph.
- (ii) The most common reason given for subsistence farming was to feed the family, though many candidates were able to make relevant references to farm size, finance issues or markets.
- (iii) Candidates' interpretation of the photograph was variable. The most common correct responses were about the large scale of the farm, monoculture/single crop and mechanisation (with some qualification). Incorrect ideas included power lines, roads, surrounded by trees and irrigation as these either did not relate to the features of the farm or were not evident from the photograph. Few identified the crop as oil seed rape, though this was no surprise ('flowers' was accepted as an answer). More surprisingly few observed the gently sloping or undulating land which was being cultivated, and few commented on the farm being commercial. Several candidates suggested the farm was intensive whilst others suggested it was extensive. The evidence in the photograph is insufficient to reach a conclusion either way, though 'capital intensive' was an acceptable alternative to 'mechanised'.
- (b)(i) Most candidates recognised the contrast in trends between the two areas. Many included supporting data, but rarely was this sufficiently accurate to be within the accepted range. Some candidates did not focus on trends (increase in Sub-Saharan Africa/decrease in South East Asia) and compared the two regions for each year which was not a valid approach. Similarly explanations were not relevant.
- (ii) There were many varied ideas suggested, most commonly war or conflict, poor farming practice and lack of government assistance. Many answers included valid political factors, reflecting the situation in southern Africa. Candidates could focus on the fact that farmers could not afford fertilizers, pesticides, machinery etc. or indeed that there was a lack of availability of these key inputs, however those candidates who focused on individuals not being able to afford to buy food, had not understood the focus of the question. There were also irrelevant responses based on physical factors, notably drought and other natural disasters.

- (iii) This question was well answered. Many suggestions were made, such as the more use of fertilisers, pesticides, irrigation, the use of high yielding varieties of seeds and Green Revolution ideas. The role of government was well recognised by many candidates, in education in farming practices and the funding of some improvements (e.g. irrigation schemes, cost loans). Most candidates who scored full marks did so through suggesting several ideas rather than developing them, however either approach was acceptable. Surprisingly there were relatively few references to appropriate technology, yet too many which suggested unrealistic and simplistic responses such as 'use more land' and 'employ more workers' and 'become commercial farmers'.
- (c) Where candidates had clearly studied a farming system or a farm, and were prepared to develop their ideas and write in detail they scored well, providing many details about inputs, processes and outputs as well as place-specific knowledge. Others gave generic lists that bore no relationship to the example and/or gave lists of inputs, processes and outputs, or alternatively a systems diagram, to illustrate them. These gained credit at Level 1. In order to go beyond this candidates needed to develop their ideas, and when they did so it was usually in relation to farming processes. Candidates should be able to develop their ideas on inputs by detailed reference to climate and soil for example, and outputs by reference to where and how the outputs are marketed and/or used. The most popular case studies were plantation crops of sugar cane, tea or tobacco. These usually produced the most comprehensive answers. Some candidates incorrectly focused their answer on subsistence farming or food processing in factories.

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Paper 0460/13

Paper 13

General Comments:

The examination was considered appropriate for the ability range of candidates and a high level of differentiation was achieved throughout. Many excellent responses to all questions (whichever were opted for) were seen and candidates were able to show their level of ability, including those who gained A*/A grades. The more structured questions worth fewer marks allowed all candidates to achieve positively. Also, questions referring to source materials provided all candidates with positive opportunities to gain marks. Inevitably there were some candidates who for a variety of reasons performed poorly in the examination (e.g. lack of understanding, linguistic difficulties), however it has been noted that the standard and quality of work seen from candidates is continuing to improve overall. Many candidates use geographical terminology appropriately and confidently and are able to recall case studies in detail, particularly when they are case studies local to them or from within their own country. Nevertheless there are still many candidates who fail to give place specific information in order to gain the full Level 3 marks (having given some very detailed Level 2 responses). Weaker candidates tend to list their responses in bullet point form and often as a result do not gain more than Level 1.

The following items of general advice, which have been provided previously in this report, need to be given to future candidates who should:

- make the choice of questions with care, ensuring that for each question they choose they have a named case study about which they can write in detail and with confidence.
- answer the three chosen questions in order, starting with the one with which they are the most confident, and finishing with the one with which they are least confident (in case they run out of time).
- read the entire question first before answering any part, in order to decide which section requires which information to avoid repetition of answers.
- highlight the command words and possibly other key words so that answers are always relevant to the question.
- use the mark allocations in brackets as a guide to the amount of detail or number of responses required, not devoting too much time to those questions worth few marks, but ensuring that those worth more marks are answered in sufficient detail.
- consider carefully their answers to the case studies and ensure that the focus of each response is correct, rather than including all facts about the chosen topic or area, developing each point fully rather than writing extensive lists of simple, basic points. It is better to fully develop three ideas rather than write extensive lists consisting of numerous simple points.
- study the resources such as maps, graphs, diagrams and extracts carefully, using appropriate facts and statistics derived from resources to back up an answer and interpreting them by making appropriate comments, rather than just copying parts of them.

The following detailed comments for individual questions will focus upon candidates' strengths and weaknesses and are intended to help centres better prepare their candidates for future examinations.

Comments on specific questions:

Question 1

This proved to be the most popular choice of question by candidates and was overall generally well answered.

- (a) (i) Almost all candidates accurately stated 35-39.
- (ii) Most candidates gained the mark for A but fewer gained the mark for B, as many they did not refer to the 0-14 dependent age group. However, in general the evidence from the population pyramid was well used.
- (iii) Many candidates scored the full three marks with the most common responses referring to a rise in taxation, people having to work harder and more money being spent on care homes etc. This was generally well answered but there were some irrelevant points included, also many candidates wrote unnecessarily long answers.
- (b) (i) Most candidates scored the full three marks.
- (ii) This part was also generally well answered with lots of full mark answers showing a good understanding. Many candidates scored the full four marks.
- (iii) This part was also generally well answered with reference to a range of ideas such as various incentives to potential parents. Some candidates scored the full five marks though others made one or two relevant points, hence this question differentiated well.
- (c) Few scored the full seven marks as good developed answers tended to lack place specific detail. However, many candidates scored marks for good level two responses up to six marks. Many correct choices were referred to as examples including most frequently New Zealand and China, where many candidates referred in detail to the one child policy in order to reach Level 2. However candidates need to understand that there are other reasons for the low growth rate as well as government policy. It is also vital that candidates understand how and why changes in death rates contribute to population change.

Question 2

This question also proved to be a popular choice by many candidates, probably the second most popular but with varying degrees of success. In comparison with **Question 1** this question was not as well answered overall.

- (a) (i) Too many candidates repeated the terms 'rural' and/or 'urban' without stating the 'edge of a town or city' or the 'area where a town and countryside meet'. Candidates should learn their key terms and definitions fully when preparing for the examination.
- (ii) This part was generally well answered and most candidates correctly identified two land uses, scoring both marks.
- (iii) This part was generally well answered, providing candidates were prepared to develop their responses rather than just write brief simplistic ideas. For example 'noise' alone would not gain a mark as candidates need to state 'construction noise during building' or 'disturbance from noise' etc.
- (iv) There were some excellent responses with a balance of advantages and disadvantages given. However, weaker candidates had little idea about what the question was asking and incorrectly wrote about preserving buildings etc. The majority of candidates managed to score at least one or two marks.
- (b) (i) Generally well answered and most candidates attempted to use the photographs, however, some did not compare them and a few used the statistics instead.
- (ii) There were many good responses to this part and candidates made good use of the table. Many candidates were able to score four or five marks, provided that they interpreted the statistics rather than just repeating them.

- (c) Again there were some very good responses to this case study. Many well focused responses gave a good example of a new out of town shopping mall near Auckland which was a popular choice. Responses that chose well tended to do well with developed advantages and disadvantages although some responses from candidates who gave detailed responses did not score the full seven marks as there was not enough specific detail. Some candidates tended to write about an area in general, rather than the rural or urban fringe, some covering a variety of changes (e.g. London Docklands). Consequently their advantages and disadvantages were usually not well enough focused or developed to gain high marks.

Question 3

This question was a fairly popular choice by some Centres and was generally well answered too.

- (a) (i) The vast majority of candidates answered this correctly by stating 'it was thought to be dormant' or 'it was the first recorded eruption.'
- (ii) Again most candidates correctly answered this part showing good geographical skills. However, some candidates only gave the distance or direction instead of both.
- (iii) This part was generally well answered with many candidates scoring the full three marks. The most popular common responses referred to 'damaged/destroyed buildings', loss of farmland', 'tourists unlikely to visit' and loss of jobs'.
- (iv) There were varied responses to this part as many candidates failed to develop their ideas sufficiently enough beyond their answers to (iii) and in many cases repeated them. Having said that some candidates gave excellent, detailed responses, gaining the full four marks.
- (b) (i) Most candidates scored a mark for 'along plate boundaries/margin' but many did not go beyond that. Some candidates included a lot of irrelevant explanation. Candidates need to practise describing a distribution from a map, making appropriate statements using the evidence.
- (ii) This part was generally very well answered by almost all candidates and only a few candidates made the mistake of thinking it was a conservative plate margin. Many included impressive diagrams but they often did not score any extra marks as they repeated any annotation they had included on the diagram in their written text. This is not necessary, indeed a good fully annotated diagram can score full marks alone, detailed annotation being the key to success.
- (c) There was a wide range of responses to this case study. Those candidates who chose flooding, particularly in Bangladesh, often gained the full seven marks as they included some well developed Level 2 responses with lots of place specific detail. There were also a few well developed and place specific Hurricane Katrina examples. However many who chose tropical storms needed to have developed a better understanding of their causes. Those candidates who chose drought tended to ignore the need to write about causes, or maybe they were unclear as to the meaning of the word 'drought' as they just wrote about the impacts of lack of water supply for the people. Indeed candidates need to be sure that, whatever the topic, they understand the differences between causes and effects.

Question 4

This question was not a popular choice by candidates however, as responses to it were variable, the question differentiated well amongst candidates.

- (a) (i) The vast majority of candidates correctly identified either 'freeze thaw or exfoliation' for physical/mechanical weathering and 'carbonation or oxidation' for chemical weathering.
- (ii) Many candidates when describing the difference between physical and chemical weathering simply repeated the words 'physical' and 'chemical' within their response. Some however, successfully expressed the idea that chemical weathering involves a reaction or change in composition of the rocks.

- (iii) This part was generally well answered. Many candidates gained two out of the three marks available as they referred to plant roots growing in the cracks and widening them. Some candidates referred to 'seeds falling into the cracks in rocks' first. Candidates should also remember that biological weathering also involves other processes such as 'animals burrowing and wearing rocks' or 'organic acids helping the decomposition of rocks'.
 - (iv) Most candidates understood what the question was asking and many made a good attempt at answering it. The vast majority of candidates referred to climatic/weather conditions and illustrated their answer using freeze thaw or exfoliation as examples. However, relatively few referred to rock type or the significance of rock composition and structure.
- (b)(i) Many candidates concentrated too much on the background features rather than the more obvious features of the rock outcrop in the foreground. Nevertheless most scored at least one mark. Those who did focus on the rocks generally scored high marks for their comments. The most common correct responses were; 'smooth', 'cracks/joints', 'bare rock' and 'moss growing on it'.
- (ii) This question was generally very well answered and almost all candidates showed good knowledge and understanding, illustrating their answers with diagrams and scoring high marks.
- (c) The case study question differentiated well as there were some excellent answers on all three of the options though weaker candidates tended to make generic and simplistic points as expected. The most common options were 'mountains' or 'flood plains'. Many candidates included place specific details and some excellent answers were seen using the Ganges for a flood plain or a specific named mountainous area in New Zealand. Fewer candidates chose the fast flowing river option and many who did tended to refer to water supply, irrigation for crops or fishing rather than developing the opportunities from a fast flowing river e.g. 'developing Hydro Electric Power could attract industry to the area'.

Question 5

This was another popular choice by candidates. The overall response was good but responses to the case study question were varied.

- (a)(i) The vast majority of candidates correctly stated 'high technology industries'.
 - (ii) There were many two mark answers as most candidates were aware of the type of industries. However some were vague e.g. candidates simply stated 'research' and others gave names of companies such as 'Apple' rather than examples of types of business. A few wrongly gave examples of manufacturing or service industry (e.g. car assembly).
 - (iii) This part had many answers which were not relevant as candidates did not describe the location but tried to explain why it was a good location. Those who did describe location by referring to named places and using distance or direction were far more likely to succeed than those who made simple statements such as 'near a main road, 'near a university', etc.
 - (iv) Generally well answered as candidates referred effectively to the ideas on Figures 8A and 8B and showed good understanding of the requirements of high technology industry.
- (b)(i) Generally well answered, the most common response was 'cheap labour supply' which virtually all candidates made. Others popular responses included references to government incentives, cheap land or fewer environmental restrictions.
- (ii) Again well answered by many, with almost all mark scheme ideas regularly appearing.
- (c) Candidates tended to repeat their earlier answers especially those who chose an LEDC answer, sometimes to a maximum of Level 2, five marks, as a manufacturing industry was not chosen. Other candidates were restricted to 5 marks as their location was a country or they did not state the industry, just writing generally about an industrial area (e.g. M4 Corridor). However, some good examples were seen, with place specific detail on the Detroit motor industry or Iron and Steel in South Wales for example. A few, although not many, used local examples such as manufacturing industries in various parts of New Zealand. It is often beneficial to choose local examples, however whichever example is chosen ideas must be developed. The value of using a local example is that it is more likely that place specific details will be included. One Centre for example used car

assembly in Slovakia, which was a resource in a previous exam. There were some well developed points but answers lacked place specific detail and many only gained Level 2. Many did not identify where in Slovakia the industry was and did not include place specific details.

Question 6

This question was often a third choice by candidates and overall was generally well answered.

- (a) (i) The vast majority of candidates correctly identified 370 thousand but a minority did not state the 'thousand/000' and just wrote 370.
 - (ii) This part had a varied response, with many candidates having a 50/50 success rate. When working out change during a year some candidates seemed to be looking at the beginning of the year on the graph rather than at the end of it.
 - (iii) This part was generally well answered as many candidates gained a mark for the general increase with correct statistics. Candidates should seek to describe general trends from this type of graph rather than writing about every year by year variation.
 - (iv) Very few scored full marks here, one or two marks being more typical. Candidates usually gained their marks for reference to 'greater affluence', 'tourists wanting new experiences' and 'having more knowledge about distant locations'. Many airline references were too vague for credit e.g. 'transport improvements' and some candidates wrote about the attractions of the LEDCs (e.g. sun and beaches) or the benefits of tourism development neither of which was what the question was asking.
- (b) (i) Generally well answered typically with relevant references to 'lack of qualifications', 'lack of formal jobs' and 'no need to pay tax/overheads'. The majority of candidates scored at least two marks with many scoring three.
 - (ii) There were many good points made here and most candidates scored at least two or three marks. The most common responses referred to jobs and various infrastructural improvements. Many good candidates scored the maximum five marks.
- (c) Answers focussing in detail on an area within the country where the candidates were living (e.g. New Zealand) tended to be the best responses. There were some very specific examples gaining full marks, with lots of developed points and place specific references. Surprisingly there are still numerous candidates using textbook examples, and those responses tended to be less detailed, often being basic and rarely including place specific information. Such examples included Costa del Sol, West Indies and Kenya, the last two being limited to Level 2, 5 marks maximum as they were too large a scale.

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Paper 0460/21

Paper 21

General comments

Responses to the questions ranged from very good to poor across the whole paper. The range of marks was from 1 to 55 (out of 60). There were a few really excellent scripts which scored over 50 marks but many weak ones which scored fewer than 20 marks. Unfortunately, poor and illegible handwriting was a feature of some scripts.

The good scripts were often quite brief, gaining all the available marks for a question. Longer answers were wordy and irrelevant. Good answers were focused on the question asked, but weaker answers occurred where candidates often spotted a key word in a question, e.g. river, and wrote anything they knew about rivers rather than addressing the specific question asked. Good answers made excellent use of the resources provided in the paper, however weaker candidates often forgot that this is a 'skills' paper and that the resources provided are there to be referred to in composing answers. An example of this was in the photograph questions where good candidates described what they could see in the photograph but weaker candidates simply wrote about background theory.

There were concerns about candidates misunderstanding the meaning of the term *relief*, which occurs frequently in survey map and photograph questions and was used in **Question 1 (e)** and **Question 5** of this paper. Candidates should note that the term means the height and shape of the ground surface. When describing relief on a survey map or a photograph, it would be appropriate for candidates to refer to differences in altitude and areas of high and low land, the steepness of slopes, valleys and other specific features. Guidance on this is provided in the *Study notes for Paper 2* section of the syllabus.

In general, candidates answered the questions within the spaces provided and avoided the use of additional sheets. Candidates were able to complete the paper in the allotted time.

Comments on specific questions

Question 1

- (a) Generally, candidates answered these questions carefully and accurately. Occasionally candidates simply repeated the map symbols. For example the full word *factory* was needed in part (ii) and credit was not given for *Fcty*.
- (b) Many candidates demonstrated that they had mastered the skill of labelling features on a topographic profile. Not all drew vertical arrows to the land surface and some drew arrows that stopped short of the profile.
- (c) Most candidates did not score well in this section. In part (i), answers were too long and general and specific features were not identified. Simple evidence such as *jetty* and *harbour* could have quickly scored the 2 marks. In part (ii), very few candidates scored any marks at all. Many did not notice that the question required natural features and wrote about the motorway or agriculture. Very few answers related to the sheltered water of the bays or the idea of a natural harbour. The break in the coral reef was not identified.
- (d) The 4 figure grid reference in part (i) was usually correct but the minor trigonometrical station was rarely identified in part (ii).

- (e) Candidates were often able to note that the area around Quoin Bluff was a steep slope and quoted a typical height above sea level in metres. The cliffs at the top and other more prominent relief features such as ridges, spurs, cols and concave slopes were generally not identified. Some candidates did not know the meaning of, or ignored, the word *relief* and described human features of the area from the map by using the symbols from the key.

Question 2

- (a) Many candidates gained a mark for noticing that the railway could be used by long distance travellers. Some realised that the motorways and dual carriageways act as bypasses but few quoted the actual road numbers.
- (b) Part (i) was quite well done, but some candidates did not distinguish between compass directions and bearings and some of the estimates of the distance were very inaccurate. In part (ii), clear, relevant answers were given by some candidates, noting the idea of parking outside the built up area and then travelling to the CBD by bus to avoid traffic congestion.
- (c) Most candidates answered this well; some answers being more imaginative, e.g. monorail, subway, than others, e.g. more buses.

Question 3

- (a) The response to labelling two plate boundaries was somewhat variable. Candidates who stuck to the rubric (*label a plate margin....*) tended to give correct answers, whereas those who labelled several boundaries inevitably made errors. The most common correct answers were the Mid-Atlantic Ridge in part (i) and the Andean margin in part (ii).
- (b) This potentially demanding question was usually answered correctly, showing a good knowledge of the link between volcanoes and plate tectonics.
- (c) Many candidates scored full marks, indicating accurate interpretation of the key and an understanding that mudflows would follow the pre-existing valleys/creeks.

Question 4

This question required more knowledge with understanding than the other questions on the paper and a greater number of candidates left some of the answer spaces blank compared with most other questions. Equally, there was also a range of good, accurate answers. Generally, the spelling of cloud types and units of cloud cover (oktas) was weak.

- (a) The basic principles of the Stevenson Screen were known, although not always clearly explained.
- (b) Candidates were generally aware that the anemometer measured wind speed in part (i) and gave appropriate units in part (ii). Wind direction, and humidity were sometimes incorrectly stated.
- (c) Many candidates showed a poor knowledge of cloud types and units, with only very few candidates scoring full marks.

Question 5

Many candidates found this a demanding question. This was mainly because they did not stick to the rubric and follow the instruction to describe what was shown in the photograph. Many wrote long answers about rivers in their upper, middle and lower courses, without suitable references to what could actually be seen in the photograph. For example, although it was not possible to judge the speed and depth of the river, candidates frequently wrote about these aspects. Many also listed features which were not visible such as waterfalls. Too much attention was sometimes paid to irrelevant features such as the buildings and tracks in the distance.

Examiners gave credit to such features as meander, river cliff, slip-off slope, the almost bankfull river, visible erosion on right/outer bank, flood plain, flat/gentle slopes, valley sides, the steep slopes in the background, grass and trees, the lack of leaves and the bushes/scrub in the background.

Question 6

Of the four types of graph given, the pie graph was known by almost all candidates and they scored well in part **(a)** quite easily. Some candidates confused line and scatter graphs, and muddled the sketches in parts **(b)** and **(c)**. Radial graphs were least well known and few candidates were able to give a suitable labelled diagram of one. Some candidates left out this question completely, possibly because of lack of time.

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Paper 0460/22

Paper 22

General comments

The response to the paper was quite variable. There were some excellent scripts that scored over 50 marks but some very weak ones. **Questions 1 to 5** proved to be of roughly equal difficulty with **Question 6** more difficult than the rest. Once again, a significant number of candidates found the photograph interpretation difficult. In contrast, knowledge of graphs was excellent. There were concerns about candidates misunderstanding the meaning of the term *relief*, which occurs frequently in survey map and photograph questions and was used in **Question 1 (e)** of this paper. Candidates should note that the term means the height and shape of the ground surface. When describing relief on a survey map or a photograph, it would be appropriate for candidates to refer to differences in altitude and areas of high and low land, the steepness of slopes, valleys and other specific features. Guidance on this is provided in the *Study notes for Paper 2* section of the syllabus. Almost all candidates completed the paper within the allotted time and few sections were omitted.

Comments on specific questions

Question 1

- (a) Most candidates displayed good skills in locating features of the map and then using the key to identify them. Just occasionally, candidates confused the River Perfonde with the River Moka in part (ii) and referred to a water hole instead of a water tank in part (iv).
- (b) Candidates are now well-accustomed to this style of question and very few make rubric errors such as putting more than one tick on a row. As expected, the first two features, motorway and School, proved easiest and the spur proved most difficult.
- (c) The topographic profile was harder than some on previous papers, in that the line ran from south to north and not from west to east. Nevertheless, good candidates had little difficulty in plotting the three points accurately. Weaker candidates found the question more difficult and sometimes reversed north and south on the profile. Pleasingly, the vast majority of candidates used the correct method of labelling as shown by the example of the poultry farm in the question.
- (d) Both parts of the question proved difficult for many candidates. Six figure grid references have been an area of weakness highlighted in these reports for some time. However, it also appears that four figure grid references are not fully understood by a significant number of candidates. Guidance on this is provided in the *Study notes for Paper 2* section of the syllabus.
- (e) Few candidates scored more than two marks out of five for this part of the question. The cliffs and steep valley sides were often identified but points such as the deep valley, the narrow valley, the gorge, canyon or ravine, the winding valley, interlocking spurs, gentle gradient (long profile), valley confluence and gentle upper slopes were rarely identified. The main difficulties arose because candidates did not pay sufficient attention to the instruction in the question to describe *relief* features. This resulted in detailed descriptions of the river, land use and settlement which were all irrelevant.

Question 2

- (a) The majority of candidates showed excellent skills in completing the graph in part (i). In part (ii) most candidates correctly calculated the annual range of 2°C, however others appeared to give a mean annual temperature rather than the annual range. In part (iii), surprisingly few candidates knew that an annual rainfall of 2680 mm would be described as high.

- (b) Many candidates scored one of the two marks available. This was either for noting that it rains all year (i.e. no dry season) or for describing the two peaks in the graph. Few candidates scored both marks and few used the phrase “double maxima”, a standard way of describing rainfall distribution of the tropical rainforest climate.
- (c) Almost all candidates could correctly calculate the hours of daylight in part (i) and the temperature at 14:00 in part (ii). The relationship between temperature and cloud development in part (iii) was described clearly by the majority of candidates.

Question 3

- (a) In this part of the question, Examiners gave credit to a wide variety of landforms visible in the photograph. These included scree, boulders, cliffs, bare rock, butte, mountains or mesas, plateau, flat lower area or terrace, dissected relief, valley (or canyon, gorge or ravine), tributary valley, joints/cracks, red/brown rock and gulleys. Examiners also accepted alternative expressions for these features. Many candidates were able to score four marks out of four.
- (b) Candidates were often able to give one relevant point but few were able to give two. Possible responses included joints, bedding planes, some weaker layers and the red/brown colour which could indicate iron minerals and oxidation,
- (c) Most candidates were able to name exfoliation as the process and the curved rock fragment as the evidence. Examiners also accepted carbonation and oxidation and appropriate evidence.

Question 4

- (a) This part of the question was well-answered by most candidates, who were able to identify the dispersed, nucleated and linear settlement patterns. Candidates often used the phrases scattered, clustered and nuclear which were also given credit, although standard terms are preferred.
- (b) In part (i) only a small minority of candidates recognised that the hill-top settlement might have been established for defensive reasons. Part (ii) produced a range of responses. Candidates identified the flat or gentle slopes, the river for water supply or transport or irrigation, the bridge point and road junction and that the site was away from the marsh. Credit was not given to references to the road without further detail. In part (iii) few candidates recognised that the north facing slopes would be colder in this northern hemisphere location.

Question 5

- (a) In part (i), the vast majority of candidates were able to plot 570 mm accurately. In part (ii), candidates usually referred to dams, reservoirs or tanks. Others discussed boreholes and water conservation and rationing. Others discussed bringing in water from outside the area. Some candidates did not realise that the question referred to dry years rather than other drought periods.
- (b) Plotting and labelling of the pie graph were excellent, with many candidates scoring full marks. In part (ii) candidates usually recognised that agriculture was the biggest consumer of water but some did not quote the proportion of the supply (33%) which was requested in the question. Some candidates gave the angle 120° rather than the percentage and were not given credit. In part (iii) candidates usually noted that consumption in South Australia was greater than that in Northern Territory, however fewer noted that it was much greater or quantified the difference.

Question 6

- (a) In part (i) some candidates correctly noted that the locations of the three earliest steelworks were close to the iron ore and coal mines which provided the raw materials. They also referred to specific steelworks and raw material deposits in their answers. Other candidates merely noted the coastal locations. In part (ii) most candidates noted that the other steelworks have coastal locations but only the better answers scored a second mark for noting that the locations were on the Pacific or east coast, or that they were predominantly in the south.

- (b) In part (i) most candidates noted that the high production costs of the iron and steel industry in Japan was due to the fact that the main raw materials (coal and iron ore) have to be imported. Some candidates developed this by explaining that the bulky or heavy raw materials would involve high transport costs. Even fewer candidates noted that coal was imported to produce thermal power, that large areas of land were needed, or that reclaimed land was sometimes used. In part (ii) about half the candidates said that the Kimitsu steelworks was built on reclaimed land because it was difficult to find a large flat site in a mountainous country like Japan. Weaker answers confused iron ore with iron and steel and confused imports with exports, or discussed distribution rather than production costs.

GEOGRAPHY

Paper 0460/23

Paper 23

General comments

Candidates responded well to the paper, with about half of them scoring 40 or more of the available marks. There were many outstanding scripts. Candidates seemed to have sufficient time to complete the paper and indeed many wrote in some detail on the last question. No question proved to be particularly difficult, although occasionally candidates could have read the questions more carefully, since some of the errors in **Question 1f**, **Question 2c**, **Question 3** and **Question 5c** could have been avoided by this.

Comments on specific questions

Question 1

- (a) The mapwork question began with the relatively simple task of locating the section of the map extract shown in Fig. 1 and identifying the features. Candidates correctly identified island A as Ile aux Chats and most found the mangrove in areas B. However, some chose scrub, this being at the actual location of the letter B on Fig. 1, rather than the area identified by the arrows. The services at C were market, post office, health centre, School and community centre and again almost all candidates correctly identified two of these. The road at D needed careful scrutiny. Many candidates correctly identified it as a main B road, but others went for main A or just main road, and a few interpreted the key incorrectly putting embankment or culvert. The height of the trigonometrical station at E was 231 m, which could be read directly from the map. A few incorrectly chose either 200 m (the highest labelled contour) or 220 m (the highest visible contour adjacent to the trigonometrical point).
- (b) Three marks were available for the statements that Deep River has a meandering course, a width of generally less than 100 m and contains rapids. Most candidates scored either 2 or 3 marks. They correctly identified the meanders and rapids but some opted for waterfalls or a southerly flow.
- (c) The cross-section was not easy due to the positioning of the section line and its end points, away from the grid lines. The forest was on the western slope of Mt Chat, between 25 mm and 48 mm from the left axis of Fig. 2. This was the easiest to locate and many candidates also showed the extent of the area though some continued to the east side of Mt Chat, where the vegetation becomes scrub. The Grand River South East was to the west of the section, between 0 and 5 mm from the left axis, while the Marie Jeanne Road was over to the east, within 92 mm to 100 mm, again measuring from the left. Many candidates had positioned the road too close to the mountain. This seemed to be a result of trying to locate it based on the height of the land, rather than making a measurement along the section line.
- (d) It was pleasing to find that, on this occasion, most candidates understood the term relief and were writing about the steep mountains. Some went on to describe the concave slopes, though phrases like "steeper upper slopes" were better than phrases like "steeper in the middle of the shaded area". Few mentioned the highest point and many underestimated the highest height, referring only to the labelled contours rather than extrapolating up the hill. A few mentioned ridge, spur or shallow valleys. Many made some basic comments about relief and then went on to fill the remaining space with discussion of vegetation, the district boundary or other human features.
- (e) A multiple choice option for the grid reference ensured that almost all candidates found the correct answer of 225897. Many seemed to have used a process of elimination to have arrived at this answer. Incorrect answers always opted for the one digit variation of 224897. From the crossroads to the bridge over the Grand River South East was a south east direction, and a distance in the range 1250-1350 m was acceptable. Many had the correct direction but for the

distance there were a huge range of answers: some were inaccurately measured and some misinterpreted the scale.

- (f) The settlements along the coast were in a linear arrangement, and it was surprising to see that many candidates chose one of the other terms. In part (ii), it was necessary to suggest the steep slopes, or the presence of plantation or forest, or the lack of roads. A few candidates read the question incorrectly and wrote about “why there are a few settlements”. Others wrote about the need to avoid flooding.

Question 2

- (a) Here candidates needed to study the data presented in Fig. 4. In part (i) almost all correctly identified Wellington as the weather station with the greatest altitude. In part (ii) Palmerston North had the lowest annual rainfall on the North Island, however some candidates put Christchurch, as it had the lowest annual rainfall when both islands were considered. Christchurch was the correct answer for part (iii) and about 2/3 of the candidates opted for this. There was a wide variety of incorrect answers. A few candidates put numerical answers to parts (ii) and (iii), because they did not refer to the stem of part (a) when reading the question.
- (b) Most candidates were able to relate the temperature difference between Auckland and Invercargill to their difference in latitude, usually by reference to their position in relation to the Equator or the South Pole. Others wrote that Auckland was further north or at lower latitude, both of which were acceptable. Fewer candidates went on to make a second point through discussion of the angle of the sun, and its effect on the concentration of the isolation or the amount of atmosphere through which the rays would pass. Reference to length of day was also credit-worthy.
- (c) This produced some good answers, although prior knowledge of the area was not necessary. Candidates pointed out that the locations were on opposite coastlines, with mountains in between, causing relief rainfall, with Christchurch in the rain shadow. Weaker answers focused on the winds hitting Greymouth without pointing out that they were “westerly” or “from the sea”. A few candidates discussed the wrong places, continuing with those in part (b).

Question 3

The field sketch in Fig. 5 provided plenty of scope for identification of coastal features, which could then be described in detail in part (b). Most candidates labelled features in the background: headland, cliff, arch, stack or stump, but equally acceptable were beach, with its rocks and sand, bay, calm sea or lighthouse. There were many good descriptions for part (b), although a lot of them included detail about the formation of the features, which was not relevant. Some focused heavily on this, resulting in a lower mark, and a few candidates thought that the headland was a depositional feature, such as a spit. Quite a few candidates didn't attempt part (a) but it was often clear from the detail in part (b) that this was due to not seeing the question rather than an inability to answer it.

Question 4

- (a) Most candidates correctly identified C as a meander and many also identified D as an ox bow. Some answered “cut-off meander” for D but this wasn't accepted, being descriptive rather than the name of the feature. A, B and E proved to be more difficult. A was a spur, and B was flood plain or valley floor, but many put V-shaped valley and U-shaped valley or even just valley, while some had B as the sea. E was levee or embankment but many candidates answered “river mouth”.
- (b) Most candidates tackled part (b) in a systematic way, from high land to low land, mentioning the steepness of the upper course with its waterfalls, and the flatter land near to the mouth. Many tried to consider the river in terms of upper, middle and lower course and for the middle section wrote about meandering which was not relevant to the long profile. Lots mentioned the delta, although some referred to this as tributaries, and some only wrote about features other than the long profile. A few wrote systematically from west to east, which did tend to give the impression that they thought that the river was flowing uphill.

Question 5

- (a) All candidates recognised Asia as providing the most migrants to the USA during the period shown in the graph. The majority also correctly selected Africa as providing the lowest number, though some suggested South America - the lowest in 2008 only. The smallest number of migrants was in 1990, with an unusually low number in 2003, though some candidates gave 2003 for the first figure and 2007 for the second.
- (b) In comparing the graphs in Figs. 8 and 9, candidates sometimes struggled to express their ideas. Some did point to more detail or more years in Fig. 8, and a few made the point that it gave a continuous picture. Weaker candidates simply stated that they thought Fig. 8 was easy to read while others said the same about Fig. 9. The main advantage of Fig. 9 was that it shows the locations and thus gives a good visual effect. Some candidates pointed this out but there were more correct responses for Fig. 8, than for Fig. 9.
- (c) This section was done very well, with many candidates correctly suggesting birth rate and death rate and quite a few put these points together as one and mentioned emigration data as their second point. A few also pointed out that the immigration data was incomplete and thus figures for immigration from other sources would also be relevant. The most common error was when candidates misread the question and wrote about the data given in Figs. 8 and 9.

Question 6

- (a) Candidates correctly explained renewable energy with phrases such as “won't run out” or “recreated faster than used” or “replaced within a lifetime”. However, some simply put “reusable” or “can be used again”, both of which were rather more vague. In part (ii), renewable sources from Fig. 10 were solar, wood, timber waste, sugar waste or biomass, with coal and oil being the non-renewable sources. Many candidates correctly selected from these. The most common error was putting renewable - solar; non-renewable - biomass, perhaps due to extracting the side headings from Fig. 10, without reading more carefully.
- (b) It was pleasing to see that many candidates had taken notice of the instruction to write in their “own words” rather than simply copying sentences from Fig. 10. For the rural subsistence farmer, many focused on the disadvantages, highlighting the cost of solar power and the problems of collecting firewood, potential soil erosion affecting agriculture and the illness/danger issues associated with open fires. Other points that were made included the ability of solar to power low level energy requirements, such as lighting, and the fact that firewood is effectively free for the farmer (though running out) and can be used in conjunction with an efficient wood stove. However, some candidates wrote about farmers with energy requirements for complex machinery; unlikely in a subsistence situation in Swaziland. In discussing the hotel owner, most candidates focused on solar power, with its ability to heat swimming pools and provide hot water for showers etc., but the disadvantage of its inability to power colour TVs or hotel kitchen equipment was less frequently suggested. A few pointed out that a hotel might be unlikely to have a supply of biomass fuel, perhaps due to an urban location.

GEOGRAPHY

Paper 0460/03

Coursework

General comments

This was the final entry for 0460/03 where two investigations needed to be undertaken and written up for this component of the exam. Most points about this two study format will not be applicable in future examinations, and little comment will be made on them, but some of points from this and previous sessions may be equally applicable to the new single study entry format.

There were no instances of inappropriate rounding of marks during this session, but almost half of the Centres with entries in the October/November session did make arithmetical errors in adding marks from individual assessment criteria to arrive at a final total mark. In many cases these errors lowered the mark the candidate should have been awarded. Moderators will find this error if an individual candidate has been selected as one of the sample to be sent in, but there is no guarantee that any errors will be picked up if the candidate is not included in the sample. This problem will still apply in the future when there is only one study. It is always worth a second person in the Centre undertaking an arithmetical check before final marks are submitted.

The majority of studies undertaken in this session were quite appropriate for investigation for coursework. Where there were limitations posed by the nature of the studies, these have been pointed out in reports back to individual Centres. As usual, guidance on the standard of assessment by the Centre is included in the same report, but it should be noted that Moderators are impressed by the high quality of judgement usually applied, and in particular, that the rank ordering of candidates is almost always of a high standard.

Looking to the future, in most cases, Centres can continue to use the same investigations that they have used in the past, using just one of them, or offering candidates a choice between the two if there is sufficient opportunity to offer support for more than one. It should be noted that the word limit has increased from 1500 to 2000 words. The use of the extra 500 words should be considered carefully. It might be better for candidates to use the additional wording for criteria where marks are traditionally often low, rather than writing more on criteria that are usually already done well. For example Observation and Collection of Data is usually written up very well. Descriptions of what has been undertaken are usually clear and complete and often, they are justified well too. If one of the former investigations is to be used, it might be worth modifying the investigation so that it has a little more depth in areas where marks are often lower. It is often in the later stages when the criteria do not currently have sufficient attention. If the extra allowance on wording could be directed towards Analysis, and to Conclusions and Evaluation, it is likely to be more profitable. This would be better than say, adding a further hypothesis, which is only likely to encourage more to be written at the same depth as at present, rather than promoting more depth into the same area of study.

Submissions to CIE, of proposals for investigations to be undertaken, are almost always sent in with sufficient detail for that purpose, but as is often pointed out, the document can be used for several purposes. One of these is to give candidates an idea of what their written reports should contain for each of the assessment criteria. It is usually for the criteria of Analysis, and Conclusions and Evaluation, that the content has little detail, but it is in these areas that many candidates need most guidance to write up their findings to do full justice to the work they have undertaken.

The new format should allow candidates the opportunity to produce work of greater depth, and Moderators are looking forward to reading studies of this kind in the next session of the examination.

GEOGRAPHY

Paper 0460/41

Alternative to Coursework

General comments

Most candidates found this examination enabled them to demonstrate what they knew, understood and could do. The overall range of marks went from 0 to 56 out of 60 – a wider range than previous years - with weaker candidates scoring on the practical questions, such as drawing and interpreting graphs, and those of higher ability scoring well on the more challenging sections requiring explanation and judgement especially regarding hypotheses. Overall **Question 1** was answered better than **Question 2**.

There is less general advice to be given for areas for improvement with this paper compared with others. As there are no choices to make, it is difficult to miss sections out, although some candidates omit graph completion questions which are usually 'easier' to answer. Although there were no reports of time issues some candidates do write too much in some sub-sections. They should be encouraged to answer more succinctly and perhaps give more thought to their answers. Most points for teachers to bear in mind, when preparing candidates for future Paper 41 questions, relate to misunderstanding or ignoring command words and the use of equipment in fieldwork. Particular questions where candidates did not score well also often related to them not fully reading the question, for example **Question 2(b) (v)** where the stem was frequently ignored resulting in inappropriate answers. Questions which require candidates to develop their own hypothesis or investigation methodology are often answered quite poorly. This is an area in which Centres could do more preparation with candidates.

Centres need to realise that, although this is an Alternative to Coursework examination, candidates will still be expected to show that they have knowledge of how fieldwork equipment is used and appropriate fieldwork techniques even if they have only limited opportunity for fieldwork within the centre, for example **Question 2(c) (i)** required candidates to describe weather recording methods.

Comments on specific questions

Question 1

- (a) (i) Nearly all candidates correctly counted the number of hotels on the map.
- (ii) Also nearly all candidates correctly completed the tally and total of restaurants.
- (iii) There were few errors in calculating the percentage of gift shops.
- (b) (i) Many scored one mark for stating that both tourists and residents would use the shops and services, or that it is difficult to distinguish between residents and tourists. A few candidates also considered that the time of year could cause a variation.
- (ii) The majority were able to score at least one mark for the idea of asking the shopkeeper but few gained two marks. Candidates need to ensure that their suggestions are able to be successfully carried out. Some suggestions were impractical, such as asking the shopkeeper to keep a record, looking at customers' types of credit card, judging by how they were dressed, whether or not they were using a map, or listening to their language.
- (iii) The task of completing the pie graph was missed by a surprising number of candidates, possibly because they did not read the question properly. Of the answers submitted, only a few did not gain both marks. The main reason was failing to fill in the shading for one of the sectors. Very few candidates drew the wrong angle.

- (iv) This question was answered well by most candidates. Typical answers agreed with the hypothesis and referred to most or more than half of the shops and services being used by tourists. Some candidates incorrectly interpreted the percentage of shops as the percentage of tourists.
- (c) (i) Even though a greater proportion of candidates were familiar with what a pilot study is than was the case in this test, this was last tested, many candidates were still unfamiliar with the technique. It was best described as a test study done before the main study in order to test its methodology, so that it can be modified and improved if design faults are found.
- (ii) Candidates answered this well by considering the need to choose the sites, what criteria they should analyse and what the scoring system should be. Almost all scored one mark for a generic idea such as how many candidates to have in a group. Most candidates were aware that the main survey was the bi-polar one but some candidates were still focused on shops and services, or a questionnaire given to tourists and residents. Such candidates need to read the question more carefully in future.
- (d) (i) This relatively straight forward task was also missed by a surprising number of candidates. It is clear that some did not read all questions and instructions carefully enough and thus in this case did not complete Fig. 4. Almost all attempts scored both marks, with a few showing -1 rather than +1 for tourist buildings at site D. A few candidates did not identify the end of shading at site D with a vertical line.
- (ii) Most candidates dealt with this task well, usually stating the score for each site. Also many candidates scored marks by using words such as 'the same' and 'more' to describe the similarity and difference. Candidates need to express ideas positively and try to avoid answers which are too vague and negative for example a response such as 'they did not have the same number of people'. Candidates need to be aware that a score of 0 on a bi-polar survey does not indicate that there is no impact.
- (iii) This was usually answered well, as many candidates agreed with the hypothesis and either supported it by comparing two or more sites (such as A and D), or pointed out the anomalous position of B in the sequence.
- (iv) Many candidates gained three or four marks in this section. Candidates made good use of the map by explaining, for example, that the situation at B was influenced by its position on the main road, its proximity to the car park, hotels and tourist shops or services, whilst D was in a residential area with non-tourist shops and services. Less able candidates described the situation of the sites with respect to the car park only. Some wrote about sites being 'away from the CBD' and did not appreciate that the focus of the question was about tourism in a small village. Other candidates needed to notice that, as the question directed them to the results of the survey, answers had to mention specific sites to be given credit.
- (e) There were some excellent responses from candidates who chose to describe an investigation they had carried out in the course of their studies which could be used in a village setting, such as a traffic survey. Candidates need to have experience of some investigation in the field in order to be able to describe the procedures in sufficient detail. Unfortunately, some candidates selected to investigate what had already been investigated, such as the distribution of the shops and services in the village. Others suggested studies were not geographical, such as what food and drink were purchased. Candidates need to choose their study carefully and be sure that they can describe the data collection and presentation methods in detail. Too often 'asking' and 'seeing' are used without the questions to be asked being specified. Observation is not usually a good technique when other methods of data collection are possible. Candidates need to describe fieldwork methodology in more detail.

Question 2

- (a) (i) Many candidates gained full marks usually for driving cars, burning fossil fuels or emissions from factories. Although this question could be answered briefly, one word answers such as 'cars', 'factories' and 'deforestation' could not be credited. 'Littering' and smoking were fairly common incorrect responses.

- (ii) Most candidates scored quite well, even though they did not elaborate their ideas. Acid rain, global warming, polar ice melt, the hole in the ozone layer and smog were all well known. Some answers were too vague, for example 'fish die' without stating why. Others needed to notice that the question excluded effects on humans.
- (b) Some candidates were correct in describing the prevailing wind as the most common direction but a considerable number considered it to be the strongest wind or the wind that always blows. Others were unaware of its meaning or made vague suggestions as to its meaning.
- (c) (i) The majority could name a wind vane and rain gauge or measuring cylinder but attempts to describe, rather than name, them were rarely sufficiently detailed.
 - (ii) Candidates need to be aware that it is not correct to state that many samples will make the results 'accurate'. They should be advised to state that reliability increases as more samples are collected. A few candidates correctly observed that the study needed to allow for changes in wind direction and season.
 - (iii) Somewhat surprisingly, many candidates found this question quite difficult. They should have considered the various reasons why it would be difficult to take readings every day and at the same time of the day. Difficulties such as errors in reading the instruments and interference with the instruments, forgetfulness, and lack of access to the School site could have been suggested. Instead many candidates wrote about the fact that the wind might change direction during the day or there might not be any wind, and that it might not rain. Such ideas were not credited because the measurements count equally as others which are more measurable.
 - (iv) Many candidates answered this well by agreeing with the hypothesis, explaining that the east wind was the most acidic and quoting different pH levels for two different winds to prove the point. A few observant candidates spotted the anomaly that the pH levels of the north and south east winds were the same. Unfortunately, some confused east with west and low pH levels with low acidity.
 - (v) Although some candidates used the information on the map to good effect, others confused east with west. This question often produced disappointing answers because candidates did not heed the instruction to use the map. Consequently they did not make the link between the sources of pollution in the east, the wind direction and the School in the west. Many answers were complete theory and therefore irrelevant. Others mistakenly used Table 6 instead of Fig. 6. Also in some responses there was too much copying of information from Fig. 6.
- (d) (i) This question discriminated well. Plotting was generally done accurately but the plot at 5.7 for two dry days before rainfall was sometimes inaccurate. The best-fit line gave the most problem. About a third of candidates drew it sufficiently accurately and another third were not familiar with best-fit lines, so joined the dots. This was another part which was frequently not attempted.
 - (ii) Many candidates correctly agreed with Hypothesis 2 and supported their answer by interpreting and describing the negative relationship shown in the scatter graph. Others again confused low pH with low acidity.
- (e) (i) Candidates need to realise that the hypothesis they choose should be practical for a candidate to do. Investigating pollution of the ocean near ports would seem to have too many problems to be acceptable. Many candidates did select an appropriate hypothesis, such as 'pollution increases downstream of a factory or town'. However, descriptions of data collecting techniques were often much too vague and involved 'looking' and 'seeing'. Candidates need to give detail, such as how water acidity is tested, how the amount of litter is ascertained and so on. The number of samples to be taken was usually too few for reward.
 - (ii) Good answers included the need to monitor pollution, legislation to prevent it, taking action to reduce pollution and publicising the problem. Again, some suggestions were impractical, such as to move factories away from rivers. Others were still thinking about the need to curb air pollution and some suggested measures to alleviate water shortages.

GEOGRAPHY

Paper 0460/42
Alternative to Coursework

General comments

Most candidates found this examination enabled them to demonstrate what they knew, understood and could do. The overall range of marks went from 0 to 55/60 – a similar range to previous years - with weaker candidates scoring on the practical questions, such as completing graphs, charts and tables and those of higher ability scoring well on the more challenging sections requiring explanation and judgement especially regarding hypotheses. It was notable in this session that there were a number of questions that a high percentage of candidates gave no response to – these included (in order of highest omission first) - **Questions 2(d)(i)(15%), 2(c)(iv)(13%), 1(d)(11%), 2(c)(iii)(9%), 2(c)(v)(7%), 2(e)(7%) and 1(a)(iii)(5%)**. It would benefit Centres to look closely at those questions and the comments below in order to improve candidate performance in future.

Most points for teachers to bear in mind, when preparing candidates for future Paper 42 questions, relate to misunderstanding or ignoring command words, not attempting graph and table completions and the use of equipment in fieldwork. Centres need to be aware that, although this is an *Alternative to Coursework* examination, candidates will still be expected to show that they know how fieldwork equipment is used even if they have only limited opportunity within the Centre. **Question 1(b) (i)** required candidates to know how to use equipment to measure width and depth of a stream; **Question 1(c)(i) and (ii)** required some understanding of how floats and flow-meters could be used to measure stream velocity. No equipment knowledge was needed in **Question 2** but candidates were expected to have experience of devising questionnaires and surveys.

Comments on specific questions

Question 1

- (a) (i)** Most candidates did this well. They realised that any measurements not taken on the same day would invalidate comparison of the results due to changing weather conditions or its subsequent effects such as changes in the river. A few candidates referred to avoiding bias or to have a fair test which needed a little more elaboration that related to the importance of taking the measurements on the same day.
- (ii)** Here candidates could refer to safety issues and danger but rarely elaborated on these e.g. to check the river was safe from wildlife/crocodiles or to check the depth to ensure it was safe to take measurements in the river. A number did raise the issue of access but again needed to add from where/how or issues of permission to use the land where the river was. Equal distance between sites was a good answer however a number just referred to checking the distance.
- (iii)** The best candidates understood the pilot study was a form of trial and to test the use of equipment; they also referred to the possibility of finding errors in the proposed investigation and correcting them before the real thing. Overall, though, this was not well answered with 3% not attempting the question and a minority achieving full marks. A few thought it was to get some early results as part of the investigation; as always one or two thought a pilot study involved flying over the sites taking aerial photographs!

- (b)(i) It is important in this type of question that candidates read the rubric carefully. The list of equipment listed is what the candidates used to measure width and depth so no other equipment should have been referred to in the answer however a number also added ranging poles for use in measuring the width and tying rocks to the rope to measure depth. The best answers realised that a candidate was required each side of the river holding the rope taut and the tape measure or metre rule could then be used to measure the width along the rope. With depth the ruler or metre rule would be placed vertically on the river bed and then the depth read off. Some candidates need to understand that laying the rope along the wetted perimeter and measuring that does not give the river width.
- (ii) Almost all candidates could plot two fairly difficult points on the graph and shade the correct cross-section area for three marks. Others did not use the vertical scale in the correct order of figures and plotted 0.41 at 0.39 and 0.46 at 0.34. A small number incorrectly shaded the area outside the cross-section of the river. Two per cent of candidates did not attempt this.
- (iii) This was answered well by most candidates. Without doubt the worked example helped with the working and layout. However not all candidates used the figures stated in the stem. Consequently their calculations were incorrect. A number did not give the unit "square metres" after the calculation thereby losing a mark.
- (iv) Most candidates recognised that Site 4 was wider and deeper than Site 1 with a larger cross-section. A small number used the distance from the left bank as a difference which was not accepted and a few listed differences without comparing them.
- (v) Almost all candidates recognised the general trend from the data and agreed totally or to some extent with Hypothesis 1. The best candidates then identified an anomalous result and explained why they had picked it. Other candidates just stated "Site 6" or similar without any clue as to why it had been chosen. While the question does not specifically ask for explanation some idea needs to be stated as to why that choice has been made given that 4, 5 and 6 all had a reason for being declared anomalous.
- (c)(i) Almost all candidates chose to use the floats and stopwatch for the measuring but less than half gained full marks. Most suggested using the stopwatch to time the float over a measured or set distance; some suggested 10 metres – others only 1 or 2 metres which would be too short for a sensible reading. A number suggested timing the float over several "runs" but did not go on to say why e.g. to take an average time and work out the velocity using distance and time. Very few chose the flow meter; maybe they had not used or seen one in action. Those that did choose the flow meter could only suggest immersing it in the water with very little on how measurements could take place using the instrument.
- (ii) Most candidates did know some details about flow meters and their advantages and disadvantages focusing on greater accuracy and time-saving qualities as opposed to problems of expense/access to the instrument and candidates not knowing how to use it. For the few that had picked the flow meter in (i) they could give some advantages for using the float method such as much cheaper to organise and encouragement of teamwork with problems of needing several different materials, scope for candidate error and issues with the floats getting caught in the stream. Four per cent did not attempt this question mainly due to lack of knowledge of the flow meter.
- (iii) Almost 75% of candidates plotted the two points correctly though a few plotted Site 5 just two squares from 0.25 instead of four; careful checking of the scale would have helped here. A number tried to draw best-fit lines or joined all the points up – both of which were not necessary or requested.
- (iv) This was a question that enabled candidates to show what they understood from the table and its link to Hypothesis 2. The best answers agreed wholly or partly with the hypothesis as looking at the overall trend it would be true. They then supported this by referring to Sites 1-4 where the positive relationship was continuous or to the overall difference between Sites 1-6 which agreed with the hypothesis too. They also then noted the anomaly of Site 5 which was deeper than Site 6 but with a slower velocity. These three aspects to the response gave three marks. Only a few candidates disagreed with the hypothesis; others agreed with evidence of support but did not go on to discuss the anomaly.

- (d) Overall the answers to this question lacked practical awareness of how valley differences are recorded; only 18% gained the full 3 marks and 11% of candidates did not attempt it. Candidates suggested measuring aspects of the river again instead of the river valley. The question asked how they would record these differences; candidates need to understand practical responses were needed such as draw sketches or take photographs of the valleys at six sites; make notes/describe the valleys; identify the vegetation of the valleys or measure the valley widths. These are all practical activities that could be used to record and compare the valleys at the six sites.

Question 2

- (a) (i) Many candidates came up with answers that were unlikely e.g. a golf course, river, dam and other numbered sites. The expression landscape feature did not seem to be well understood. Given the position of the label on the resource map other answers such as trees were accepted.
- (ii) Over 80% of candidates came up with the correct answer of 332.
- (b) This was a successful question. Most candidates could identify water features, trees and other vegetation in the Landscape section; many windows, modern and two/double-storey buildings were also popular responses in the Buildings section. A number of candidates mixed up the two sections and wrote about skies, bridges, tarred roads, fire escapes and chimneys as well as flowing rivers which were not accepted as significant features of the landscape or buildings shown. Nevertheless almost half the candidates gained the full four marks most gaining three for landscape features.
- (c) (i) Most candidates could judge that there were issues of privacy in naming the company or that it was irrelevant and unnecessary to the hypothesis being tested.
- (ii) This question caused candidates a number of problems with 4% not attempting it and only 18% gaining the full two marks. Too many focused on the employment numbers in the table rather than the physical size shown on the map. Few divided the companies into two groups and then compared the location of each group e.g. near exit/entrance, in the centre, to the north and south of the estate. The word "distribution" was not well understood by candidates as in several previous examinations.
- (iii) Although 70% of candidates could add 7 and 93 to the table for both marks, a number just included 7 without adding the total; some used incorrect data and 9% missed the whole exercise out. Candidates are encouraged to look for questions on pages where there are data and graphs as the examination layout cannot always keep instructions and questions clearly away from the data and graphs. If candidates did not see (iii) and (iv) on page 12 they would miss out on 4 marks; this may also then have influenced future answers that required use of the completed table and pie chart.
- (iv) Plotting 89 and shading the two slices correctly using the key gained many candidates both marks yet some put the 89 line far too close to the given 90 mark or even in line with it. It was acceptable though unconventional for candidates to shade the slices in reverse with a line drawn at 94 which was quite well done by the small number who chose this way. As with (iii) it was surprising that 13% of candidates missed the completion of the pie chart though 73% gained both marks.
- (v) The table provided gave a total of 93 companies in the estate of which 10 were "other industries" i.e. 83 were hi-technology industries consequently 89% of the estate comprised high technology companies which would be one reason to justify Hypotheses 1 being true. There were also 28 bio-medical companies and 26 environmental companies together on the estate. These observations should have been enough to have helped candidates understand why the hypothesis was true. The stem referred to Figs. 8 and 9 to support the answer but many candidates gave judgements that appeared to show no reference to the data – a number of these were candidates who did not attempt (iii) and (iv). Only 13% gained both marks and 7% missed it out.

- (vi) Candidates did understand that close links that would enable same sharing of ideas, resources, materials and mutually beneficial assistance would all be good reasons to expect high-technology companies would be located together. Some were astute enough to mention government grants, cheap land, possible proximity of a university and pleasant environment. Common requirements may have created similar industries in similar areas. As the companies were not looking for consumers it was not accepted that shoppers could make comparative choices or that transport costs would be saved if they were all together. Nor was it thought that exchanging skilled labour or locating near to their workers were likely locational factors.
- (vii) One mark was available here for generic reasons why the “other industries” might locate on this estate e.g. cheap land, more customers, beautiful scenery but two marks could be obtained by referring specifically to the provision of specified services for the employees of the high-technology industries. The best candidates referred to examples such as the gym providing opportunities for exercise outside of working hours or to the nursery for employees to leave young children close to their workplace during working hours. Vague answers such as “so the workers can use their services” were not credited.
- (d)(i) Seventy five per cent of candidates completed both graphs correctly including shading yet 15% of candidates – the highest omission figure on the paper- did not attempt the bar chart completion. Some candidates completed the 30 plot but not the 53 plot. The shading of the bars to match the others is quite significant although there was no mark on this occasion for shading.
- (ii) Given Hypothesis 2 was clearly about skilled or trained employees, candidates were expected to suggest three questions to ask a company that would relate to this Hypothesis. Many candidates did this but less than expected. Candidates needed to read the Hypothesis carefully. Too many only suggested one question related to the Hypothesis then followed it up with two unrelated ones such as *What are your qualifications?* or *How long are the holidays?*. Candidates could state the question in a format that was more of a statement as CIE is aware that questions are not always asked in the same way across the world. A few candidates asked individual questions e.g. *What university did you attend?* which were not considered appropriate to investigate the Hypothesis.
- (e) The final question was about the candidates’ investigation of a choice of factors influencing the location of the companies. This proved very difficult for candidates with 7% not attempting it and only 9% gaining the full 4 marks. The more popular choice was the transport links issue although some candidates attempted both! Answers here varied. Candidates could only suggest “find out”, “look for” certain things rather than practical techniques to investigate the factors such as questionnaires, surveys, looking at maps for transport links. Many answers suggested carrying out traffic counts at the company gates of workers cars or lorries which would not help with the investigation. Fewer candidates looked at the raw materials factor but similar issues prevented credit being gained there. Answers to such a question would be improved if candidates were given some experience, practical or otherwise, of the field techniques that could be used in such investigations.

GEOGRAPHY

Paper 0460/43

Alternative to Coursework

General comments

Most candidates found this examination enabled them to demonstrate what they knew, understood and could do. The overall range of marks went from 7 to 56 out of 60 – a similar range to previous years - with weaker candidates scoring on the practical questions, such as drawing and interpreting graphs and diagrams, and those of higher ability scoring well on the more challenging sections requiring explanation and judgement especially regarding hypotheses. Overall there was little difference in the standard of answers between **Questions 1** and **2**.

There is less general advice to be given for areas for improvement with this paper compared with others. As there are no choices to make, it is difficult to miss sections out, although some candidates omit graph completion questions which are usually 'easier' to answer. Although there were no reports of time issues some candidates do write too much in some sub-sections. They should be encouraged to answer more succinctly and perhaps give more thought to their answers. Most points for teachers to bear in mind, when preparing candidates for future Paper 43 questions, relate to misunderstanding or ignoring command words and the use of appropriate fieldwork techniques. Particular questions where candidates did not score well also often related to them not fully understanding the question, for example **Question 2(b) (i)** where the mapping task was not well described by candidates. Questions which require candidates to develop their own hypothesis or investigation methodology are often answered quite poorly. This is an area in which Centres could do more preparation with candidates.

It is worth reiterating that, although this is an Alternative to Coursework examination, candidates will still be expected to show that they know how fieldwork equipment is used and appropriate fieldwork techniques even if they have only limited opportunity for fieldwork within the centre, for example **Question 2(b) (iii)** required candidates to describe how to measure the angle of slope.

Comments on specific questions

Question 1

- (a) Most candidates were able to label both of the areas (bare sand and marram) grass correctly.
- (b)(i) Most candidates correctly identified the correct angle of the transect.
 - (ii) There were many good answers which showed understanding of how a systematic sample works, with reference to regular and equal spacing. However, few referred to the whole length of the transect prior to selecting the sites. A minority incorrectly started writing about how angles of slope would be measured.
 - (iii) There were some very good attempts, which were clearly written and scored full marks. However, vague responses included those who wrote about measuring without saying what was being measured. Most candidates used Fig. 3 and were able to speculate how some of the equipment was used and therefore score some marks. Weaknesses in some answers included not using the tape measure to measure distance, placing the ranging poles at the top and bottom of the beach with no smaller intervals, and using a protractor not a clinometer to measure angles.

- (c) (i) Most candidates scored at least 1 mark, but the common mistake was to label the dune rather than the main dune ridge.
- (ii) There were many good attempts with most candidates recognising the resemblance of the sequence of features to the textbook example, though those who had wrongly identified 'old dunes' compounded their error in this part. The supporting evidence was mainly identifying differences such as steeper slack angle and shorter slack lengths.
- (d) (i) Many candidates scored at least two marks, showing that they were familiar with how a quadrat would be used. Some were sidetracked and referred to depth and types of vegetation, and very weak candidates tried to write about the 'human impact' in the squares of the quadrat. A few candidates were too vague in their description of where the quadrat should be placed to make the reading.
- (ii) Most candidates completed the bar graph reasonably accurately, although some did not attempt the question.
- (iii) The question discriminated well. Whilst there were some excellent clear full mark answers, others tended to be brief and simplistic and did not refer to much evidence. The best answers linked different activities to their varying impacts and also gave supporting percentage figures. These answers also included excellent overall judgements about the level of impact.
- (e) Many candidates gave weak answers to this section. They did not have much idea what was required other than 'look for...' or 'see if...' along with a list of measures to control erosion. Candidates often scored another mark for reference to information leaflets from the authorities or information from the Internet. Some weak candidates misinterpreted the question and wrote about what could be done to protect the sand dunes. Others wrote about giving questionnaires to visitors and using various types of surveying equipment in order to discover if the dunes were being managed, ignoring the obvious answers involving sketching, taking photographs, interviewing management etc. There was much confusion regarding which organisation would manage the dunes; often 'the council' was referred to by the candidates.

Question 2

- (a) Many candidates gave answers which were quite weak. Some candidates confused the use of primary and secondary here with agriculture or industry, others wrote about first hand and second hand information. Candidates should be learning about different types of data as they undertake fieldwork investigations.
- (b) (i) This question was also poorly answered by many candidates despite its apparent simplicity. Many wrote about fieldwork other than mapping land use (e.g. building heights) and those who did focus on mapping land use often did no more than repeat the phrase. There was little reference to mapping the land use of individual buildings. Many answers on what could be done back in School were unrelated to the mapping task and focused on obtaining extra information, for example from the Internet. Candidates should have focused on tasks such as classifying and colour-coding data which they had collected.
- (ii) Most candidates produced an attempt which was acceptable as a recording sheet and many scored at least two of the marks by including space to identify the location or site, a tally chart and a total. The main error was to list time in five minute intervals rather than indicate space for the specific time of the survey.
- (iii) Most candidates understood and described well the unreliability of the method and recognised the variation in flow which would be likely throughout the day.
- (iv) Also most candidates could describe a more reliable method of data collection, usually suggesting pairs of candidates go to different places at the same time.
- (c) (i) Most candidates attempted to draw the isoline, though with varying degrees of accuracy. The most common errors were to draw the line on the wrong side of plot '28' and going through plot '21'.
- (ii) More candidates scored the mark here than in the previous question, although some left the part within '90' unshaded.

- (iii) It was important that candidates understood the phrase 'traffic restrictions' and those who did so scored well. Those who did not fully understand the meaning tended to include ideas similar to 'vehicle pedestrian zones', such as road closures and road works.
 - (iv) The common correct answers were that it would take too long and be too difficult, due to lack of equipment, to map the height data themselves. There were many irrelevant ideas such as the danger of measuring building height and difficulty in being able to get onto the roofs or inside the buildings. A perceptive minority of candidates recognised that the need to measure such heights was unnecessary as the candidates had obtained a map which showed the data.
- (d)
- (i) Many candidates correctly identified appropriate land uses of the CBD, the most popular being shops, offices and car parks. However there was little reference to public, historic or entertainment buildings.
 - (ii) Most candidates agreed with hypothesis 2, but many did not make full use of evidence to score their second mark.
 - (iii) This task was generally done quite well and many candidates were very accurate in their shading.
 - (iv) Many candidates correctly disagreed with the hypothesis; with many suggesting that building height covered too large an area and/or suggesting that pedestrian flow would be a more accurate delimiting measure. Some candidates stated that tall buildings could be found away from the CBD, but this was not accepted as it did not come from map evidence.
- (e) Many candidates scored well in the final section. Common changes which were suggested were in the area covered by the CBD, the height of buildings in the CBD and an increase in traffic restrictions. However, common answers which were not credited related to pedestrian flow, noise levels and traffic congestion because they are not directly related to the structure of the area.