

GEOGRAPHY

Paper 0460/11

Paper 11

Key Messages:

In order for candidates to perform well on this paper they needed to be able to:

- ensure that examination rubric is followed correctly, answering 3 of the 6 questions only.
- read the question carefully – it is important to spend time doing this. If it helps underline command words and words which indicate the context of the question.
- know the meaning of, and respond correctly to command words – e.g. know the difference between describe and explain, be able to compare.
- identify the correct focus specified in the question stem – e.g. causes or impacts, natural environment or people.
- ensure candidates are aware of the scale of the question – city or country or area? Need to read the question carefully.
- use the mark allocations and answer space provided in the question and answer booklet as a guide to the length of answer required and the number of points to be made.
- developing ideas in the correct way for example development of impact rather than cause underline key words and key command words in the question to help identify this.
- perform basic skills such as interpreting graphs, photographs and maps of various types.
- know how to approach a question which asks for comparison.
- avoid direct lifts from diagrams when a question asks for interpretation of ideas.
- not simply relying on statistics for development in earthquake or volcano case study as these are sometimes incorrectly remembered.
- if the question asks for evidence or data from a source then candidates need to ensure they do this to get full marks. Data needs to be used to support statements being made rather than just being lifted and presented in isolation.
- learn the meanings of key words in order to be able to define and accurately use geographical terminology. Key word glossaries for Centres to build up would be advantageous for candidates.
- write as clearly and precisely as possible avoiding vague, general statements – e.g. ‘it will improve standard of living’, ‘it will cause pollution/make a lot of noise’.
- write developed ideas wherever possible, especially where extended writing is required in the final two parts of each question.
- have a range of case studies so that appropriate ones can be chosen for the topics tested. Some seem to have too few case studies and try to apply them inappropriately.
- include place specific information in case studies, however care needs to be taken that this is not done at the expense of answering the question. Place specific information was lacking this year.

- when using the extra space at the back of the question and answer booklet make it clear that the answer is continued and indicate the number of the question accurately, many candidates do not indicate that the question is continued.

In general, topics to focus on that were not particularly well answered: population distribution; settlement hierarchies; using weather measuring equipment; infrastructure development; comparison of energy use between LEDCs and MEDCs and energy production in a country.

General Comments:

The examination was considered appropriate for the age and ability range of candidates and it achieved widespread differentiation. As expected the most perceptive and well prepared candidates performed superbly across the paper and some excellent geography was seen. Such candidates were familiar with, and able to cope with handling the wide variety of ways in which geographical data was presented to them, handled the skills involved and displayed a mature and sophisticated knowledge and understanding of the topics tested. Most candidates were able to make a genuine attempt at their chosen questions and attempted most sections, however clearly weaker candidates found it difficult to interpret tasks and write effective responses to some or all questions. In such cases it is difficult to determine whether their command of English hampered their performance or whether their geography was inadequate.

There seemed to be more candidates in this examination session that made rubric errors and answered more than 3 out of 6 questions and in many cases answered all 6 questions. There was little, if any, evidence of candidates being short of time. The handwriting of some candidates was difficult to read. Whilst it is accepted that candidates are writing under time pressure it is important that all answers are legible so that Examiners can mark them.

The following comments on 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

- (a) (i) Most candidates were able to compare the population density of Victoria and New South Wales in some way whether it was by terms such as 'higher/more/denser' or by use of statistics and so the vast majority gained the mark for this question.
- (ii) Candidates answers often lacked precision here, especially when referring to distribution. Most were able to define density although some omitted reference to unit of area. The majority of candidates gained half of the available credit.
- (iii) This question was generally well answered, most scored a mark for reference to 'coasts' and there were many full mark answers seen.
- (b) (i) Most candidates used the resources well to gain credit. Whilst many full mark answers were seen many candidates did not achieve the full marks as they had given the same reason for 2 different pictures e.g. 'steep slopes' for both picture A and C, when the question clearly states – 'choose a different reason for each photograph'. Some vague and/or irrelevant answers from weaker candidates were also seen.
- (ii) On the whole this was a low scoring question and very few candidates secured full credit. Some candidates referred to issues other than climate such as relief and too many used unacceptable terms like 'good' or 'bad' climate.
- (iii) This question differentiated well, weaker candidates briefly mentioning one or two ideas, typically tourist related, or focussing on just one idea. High scoring candidates wrote about several reasons why coastal areas are densely populated, with good development in parts often referring to a range of ideas such as 'flat land, so it is easy to construct settlement, development of ports for imports and exports, work in tourism and examples provided, scenic value etc.'

- (c) As always this question was well answered with excellent understanding shown by many candidates as to why a country has a high rate of population growth. High Level 2 responses were common although relatively few candidates included 'place specific' information to convert their answers to Level 3. The use of accurate birth rate and death rate figures would have been a good way of doing this but few were seen.

Question 2

- (a) (i) The term 'settlement hierarchy' was not well known or understood and many candidates struggled to define it. Hence, many did not score a mark here.
- (ii) Most candidates were able to state the relationship in some way between settlement size and number of settlements in Meath County. But not all candidates used statistics well enough to support their answers for the second mark. Some candidates either did not use statistics whilst others were inaccurate.
- (iii) Clear and precise answers stating three differences between the services in Navan and Nobber were relatively few. Some candidates did not compare Navan and Nobber and there was much imprecision in terms of references to services. Many candidates wrote about things other than services, such as employment, resources or pollution. The most common mark gained was for 'bigger hospitals in Navan'.
- (iv) When asked to suggest reasons why many people who live in Meath County will travel regularly to Dublin most candidates were able to gain credit for reference to work, entertainment or University. However, many candidates gave vague responses and assumed that everything would just be 'better' in Dublin e.g. 'better schools, better shops or better hospitals' which was not credited.
- (b) (i) When asked to select and explain why three of the advantages shown in Fig. 3 are important to a developer candidates generally responded well with many scoring full marks. However, if candidates selected 'workers close by' their answer often referred to the advantages for the workers themselves rather than for the developer. All of the other ideas were well answered.
- (ii) Here candidates were asked to explain the likely impacts of a new out of town shopping centre on services in other parts of the urban area. Most candidates were credited for reference to loss of customers/reduced profits/closure of shops/businesses although some did develop their ideas and included other mark scheme ideas those that did were relatively few.
- (c) This question differentiated well. The description of problems relating to the environment not people was required and many weaker candidates did not restrict answers to the environment. Also many wrote (or developed their ideas) in relation to causes not impacts as the question states. With the correct focus candidates generally raised answers to Level 2 as they were able to develop deforestation, water pollution and air pollution ideas fairly easily. Place specific reference was limited therefore not many Level 3 responses were seen; indeed many did not get beyond 2 x Level 2 points. Some were restricted to 5 marks anyway as they had chosen a non MEDC city, particularly South American cities.

Question 3

- (a) (i) Candidates were required to identify the day with the highest range of temperature from a table of data (Fig. 4A). The vast majority of candidates identified 'Friday' correctly but the most commonly incorrect answer seen was 'Monday'.
- (ii) Here candidates had to complete the graph on Fig. 4B, this was usually completed accurately, where marks were lost the task tended to have been omitted rather than being incorrect.
- (iii) Candidates were asked to identify the weather characteristic shown in Fig. 4A which is measured by instruments listed below and most candidates were able to correctly identify them. However, there were errors from weaker candidates and some who put wind speed (or just wind) not direction for the wind vane.
- (iv) This question required candidates to describe how information about the amount of precipitation can be collected. Responses to this question varied considerably whilst some excellent full mark answers were seen many candidates equally only gained credit for stating a 'rain gauge is used'.

Many did not refer in detail to the collection of the data as required, writing about siting factors instead, and some gave a very limited response. This was quite disappointing as this question is often well answered when set on the alternative to coursework paper.

- (b)(i)** Using 2 photographs candidates were required to describe 3 differences between the clouds shown. The photographs were generally well used with most but not all candidates comparing and scoring 2 or more marks. Some vagueness from weaker candidates when describing and some lack of comparison although this was not a major issue. All mark scheme ideas were seen.
- (ii)** This was a good question for differentiation. The question asked candidates to explain why more cloud forms in tropical rainforest areas than in tropical deserts. Weaker candidates tended to just mention one or two ideas or make very vague points about 'humidity, evaporation and/or condensation', whilst others suggested a range of ideas, developing their points well. Generally more understanding was shown about rainforests than deserts and most marks were scored with references to that climatic zone. It is worth noting that candidates could not score full marks by just referring to rainforests and ignoring deserts. Indeed the two are interlinked via the Hadley Cell, to which some of the better answers referred.
- (c)** Most candidates were able to select an appropriate country or area where drought occurs and make some points about the impacts of drought, if only at a simple level. The case study differentiated well with well-prepared candidates developing ideas about impacts on both people and the natural environment although again little place specific detail was seen which limited candidates' marks to Level 2. All mark scheme ideas were seen.

Question 4

- (a)(i)** Most, but not all, candidates correctly defined 'tectonic plate'. Some candidates simply stated 'large plates' which did not score a mark.
- (ii)** The question required candidates to label the map showing a constructive and a destructive plate boundary. The majority of candidates correctly labelled these thus gaining full credit. A few responses reversed the letters but not too many and a very small number placed the letter too far away from any boundary.
- (iii)** Candidates were required to explain fully why major earthquakes are more likely to occur in the area marked X on the map than the area marked Y. Whilst virtually all candidates gained a mark for the idea of X being closer to a plate boundary compared to Y very few candidates developed their answers beyond that. See mark scheme for other alternative ideas.
- (iv)** This question asked candidates to explain why volcanic eruptions occur on destructive plate boundaries. Most candidates knew at least some of the stages of the destructive plate boundary sequence with good explanations of the processes listed in the mark scheme. Weaker candidates gave simplistic and/or inaccurate answers. Most candidates made creditworthy points with many candidates getting maximum credit for this question.
- (b)(i)** Here candidates were required to use the source material shown in Fig. 6 and describe the processes which caused the disaster illustrated. Varied responses were seen with some copying out or slight rewording parts of the source which showed little or no understanding. Most candidates did however score marks, except those who totally ignored the source and wrote about a volcanic eruption killing people with molten lava.
- (ii)** This question asked candidates to explain why people continue to live in areas of volcanic activity. The question differentiated well as weak candidates tended to focus on one or two simple ideas such as 'cannot afford to move and/or fertile soils', whilst others made a good number of mark scheme points and developed some points well. This topic is clearly well understood and rehearsed so all candidates tended to score some marks. All mark scheme ideas were seen.

- (c) The focus here was to describe the impacts of an earthquake not volcanoes which was picked up by most but not all candidates. There were some excellent responses, and many did manage to enter Level 3 on the strength of good use of statistical detail and reference to a wide range of impacts. Many weaker candidates restricted themselves to Level 1 as they made simple lists, often in bullet points. As always Kobe proved a good example to use, although others were used to good effect (e.g. Kashmir or Haiti). However, some statistics were not accurate hence, development would be better if, in some cases, it relied more on ideas rather than statistics for example, deaths due to buildings falling on people rather than just 5 000 died as candidates sometimes struggle to remember accurate figures for case studies.

Question 5

- (a) (i) This question required candidates to state how much was earned from tourism in Switzerland in 2011. Whilst most candidates were within the tolerance of 15 – 16 billion Swiss francs and gained the mark a few gave large numbers and seemed to have added up all 5 bars of the graph.
- (ii) Candidates were asked to describe two ways in which tourism can earn money for a country and the vast majority of candidates answered this correctly and gained both marks. All mark scheme ideas were seen.
- (iii) Here candidates had to give 3 different ways in which tourism creates employment and this was also generally well answered by most candidates with many scoring full marks. The most common ideas referred to 'hotels, restaurants, tour guides and/or shop work'.
- (iv) This question asked for an explanation as to why tourism leads to the development of a country's infrastructure. The most common response was 'the need to improve infrastructure to attract more people' which was valid but more was needed for maximum credit. Better candidates referred to ideas such as 'road networks, airports and/or electricity supply' etc. However, many answers about hotels were seen which suggested that the word 'infrastructure' was not well known or understood by all candidates.
- (b) (i) Candidates were required to identify three different natural attractions for tourists in the area shown on Fig. 8. Whilst most candidates made very good use of the resource and scored well, many gained credit for 'lake and glacier' but then lost credit for mountains as they stated 'chair lift or railway' instead.
- (ii) This question differentiated well as candidates were required to suggest how tourism can cause problems for residents of towns like Interlaken. Weak candidates simply mentioned one or two points, which were not always to do with people, whilst others looked at several issues relating to people, including points which stemmed from studying the map resource (e.g. pressure on rail infrastructure), developing their ideas and showing good understanding. Some candidates wrote about the natural environment and then repeated the points in (c), a certain indicator to the well prepared candidate that an error has been made in question interpretation.
- (c) Here again the question differentiated well between candidates. For a named area or country candidates were required to describe the impacts of tourism on the natural environment. Some candidates wrote about people rather than the natural environment and wrote about causes rather than impacts (particularly in the development of ideas). In questions such as this to get into Level 2 the impacts need developing not the cause of the impact e.g. 'loss of vegetation for building hotels' is a development of a cause so would only get Level 1 for the 'loss of vegetation' idea. However, 'loss of vegetation leading to loss of habitats and broken food chains' is a development of the impact and would get Level 2 in this instance. Nevertheless on balance the question was well answered by most candidates, who at least tended to score well within Level 1 or were able to develop into Level 2 by referring to loss of vegetation or a specified type of pollution caused by tourists and its impacts on habitats/ecosystems/food chains.

Question 6

- (a) (i) Candidates were asked to identify the country shown on Fig. 9 with the lowest percentage of the population with access to safe water. Most candidates correctly identified 'Mexico' and gained credit.
- (ii) Using the resource again candidates were asked to compare the energy consumption per person in Canada and Ecuador and to use statistics in their answer. Almost all candidates correctly compared the two countries, and most supported it with appropriate statistics too.
- (iii) This question asking why more energy is used per person in MEDC's than in LEDC's was less well answered. Most candidates struggled with this and few homed in on the precision required by the mark scheme. Lots of vague references to 'more money, more developed or more technology' were most commonly seen.
- (iv) Here candidates were asked to suggest reasons why it is important for LEDC's to improve their water supplies. Many candidates did not go beyond the idea of water being needed for survival; however a minority were able to score well by looking beyond that idea and referring to irrigation, water borne diseases and the ability to work more effectively if water supply is improved. There were many vague 'disease or health' answers which required more detail than that to gain credit.
- (b) (i) Candidates had to say what is meant by the following methods of water supply: groundwater, desalination and recycling. Some candidates found it difficult to define the terms with precision and some tried to define by simply using the words being defined which is not sufficient. A few referred to statistics from Fig. 10 rather than answering the question set.
- (ii) This question required candidates to describe methods which can be used to conserve water. This differentiated well with some excellent answers scoring full marks. There were lots of developed references to specific methods of conservation and most candidates at least gained credit by referring to one or two simple ideas such as 'turning off taps when not being used or collecting rainwater'.
- (c) For a named area or country candidates were asked to describe how that country obtains its energy. This was on the whole weakly answered by many candidates with most candidates achieving Level 1 with limited details. Development of the description, which was required for Level 2 and beyond, was seen but most development was inappropriate explanation which gained no credit. Whilst it was possible to answer this at a country scale the few answers that achieved high Level 2 or Level 3 homed in on a smaller area or specific example such as a HEP scheme. Fuel wood answers were also frequently seen but only tended to achieve up to Level 2. Some responses referred to a mixture of energy types but did not go on to develop how they were obtained. Place specific information was rarely seen.

GEOGRAPHY

Paper 0460/12

Paper 12

Key Messages:

In order for Candidates to perform well on this paper they need to be able to:

- ensure that the examination rubric is followed correctly, answering 3 of the 6 questions only, checking they can answer part (c) of each question before they finalise their choice.
- read the questions carefully – underlining key command words and words which indicate the context of the question is a useful strategy.
- know the meaning of, and respond correctly to, common words used in questions e.g. define, describe, compare, explain, cause, effects.
- learn the meanings of geographical terms encountered e.g. population density, international tourist, relief.
- use data and other evidence from resource materials to support statements.
- describe trends and patterns on graphs using statistics where appropriate, without simply listing them e.g. describe trends over time on a line graph by using words such as constant, slow, rapid etc.
- perform basic skills such as interpreting photographs and using maps e.g. to describe a location using distance and directions or describe a distribution.
- write as clearly and precisely as possible avoiding vague, general statements – e.g. ‘it will improve standard of living’, ‘it will cause pollution/cause overcrowding’.
- develop their ideas by elaborating on simple statements wherever possible. This is particularly important where extended writing is required in the final two parts of each question. This can be done by using connecting words such as ‘so...’, ‘whereas...’, ‘because...’, ‘on the other hand...’ - all these help to make simple statements into developed statements.
- take care when choosing examples to use in case study answers, ensuring they are at the correct scale, and develop ideas by including place specific information.
- identify the correct focus specified in the question stem - e.g. natural environment or people, causes or effects.

General Comments:

The examination was considered appropriate for the age and ability range of candidates and it achieved widespread differentiation. Most candidates were able to make a genuine attempt at their chosen questions and even weaker candidates attempted most sections, though many are let down by incorrect responses to key words in the question, especially command words. **Questions 1** and **5** were most popular. **Questions 3** and **4** were least popular. There were particularly good extended answers on overpopulation, exfoliation, and benefits and problems of tourism. However overall these extended answers and case studies seemed to be less well developed than in recent examinations, with less place specific detail being included. Even where case studies contained developed ideas they tended to be generic developments of ideas with little place detail to support them. Errors were made when identifying case studies, for example studies at the wrong scale, and such errors cost candidates marks.

Whilst there were some rubric errors, the number of candidates who answered more than three questions was relatively small, and there seemed to be little, if any, evidence of candidates being short of time.

The following comments on individual questions 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

- (a) (i) Various definitions were used and most gained a mark here. Some however did not link the population size to areas in some way or referred wrongly to resources instead.
- (ii) Most candidates understood that the better the access, the higher the density and many usefully elaborated on access by referring to good transport. There were however a large number of answers that did not show an understanding of the word relief. These candidates wrote about 'much relief' or 'large relief' or interpreted relief as being climate.
- (iii) Many answers did link low densities to extreme climates and high densities to temperate climates as shown in Fig. 1 but little explanation was included. Expressions such as favourable/good climates were vague as was use of the term 'comfortable' for people to live in.
- (iv) Good understanding was shown by many candidates, with many references to job opportunities and migration to areas with industry and natural resources. Other candidates were able to develop this further by reference to examples such as mining, water supply and factories to score full marks.
- (b) (i) Where candidates gave broad judgements for the three groups they scored well however many focused on individual age-group bands on the pyramids rather than the traditional three groupings stated in the question. In fact young dependents and economically active both decreased, only old dependents increased.
- (ii) This differentiated well as candidates needed to ensure that the reasons which they suggested were for likely changes in Japan between 2005 and 2020. Consequently standard LEDC answers relating to issues such as the use of contraception, or people needing less children to send out to work were not applicable to Japan which was an established MEDC in 2005. More perceptive candidates did however realise that developments in health care, improved diet and exercise, improved care for the elderly, and later marriages for example could be used to explain the reductions in both birth and death rates by 2020.
- (c) This case study differentiated well and there were some excellent answers. The most popular examples chosen were China, India, Bangladesh, Nigeria and Zimbabwe. Most candidates did correctly name a country although a few named a city or continent which was not appropriate. One way of including place specific information in this type of question is to choose a country and then develop ideas by reference to cities within it. For example the choice of Nigeria enabled candidates to refer to issues such as lack of jobs, homelessness, growing crime rates, traffic congestion in cities such as Lagos. Many well chosen examples did show very good knowledge of the topic, perhaps through personal experience, although most did not include place detail which is a requirement for full marks.

Many candidates who selected China focused on the one-child policy, which was a solution to the problem of overpopulation.

Question 2

- (a) (i) As Gdansk is in an MEDC, candidates should have matched the port facilities to the location by the river, the 5-storey housing blocks to the inner city and the detached housing to near the city boundary. Many did this successfully, however significant numbers did not.
- (ii) Most candidates correctly referred to the evidence such as the presence of tall buildings, many pedestrians, restaurants, offices. Others however suggested ideas which were not visible in the photograph such as a metro or busy traffic.
- (iii) Most candidates could give one or more reasons for traffic congestion in CBDs with many referring to ideas such as high car ownership, people needing to travel to workplaces and/or shops and an inadequate road network within the CBD.
- (iv) Many good examples were seen of potential solutions and generally candidates scored well on this question. Weaker answers vaguely referred to 'using more public transport' or 'less cars' without

actually suggesting what can be done to convince motorists to do this. Candidates who wrote about specific ideas, such as congestion charging, building by-passes or ring roads, opening metro systems and using park and ride schemes scored high marks.

- (b) (i) Despite its relative simplicity this question was generally poorly answered because many candidates did not notice that the question was about the change in **total** population from 1910-2000. Details of changes in central areas and suburbs were described in some detail by many but this was not relevant and was not credited. What was needed was a statement that the total amount had increased from 26% to 77/78% for two marks plus a trend within that time period for the third mark. This question illustrates well how marks are often lost on straight forward questions by not reading them correctly.
- (ii) This differentiated well, with many weaker candidates tending to focus incorrectly on rural to urban migration whilst those who understood what was required were able to score well by explaining the outward movement to suburban areas during the 20th Century as a result of issues relating to space, cost of land, developments of transport network and a variety of issues relating to the urban environment and quality of life. Candidates have been previously advised in these reports to elaborate on any reference to pollution and life quality there were still many candidates who did not do so, gaining no credit for unqualified references to 'pollution' for example.
- (c) Atlanta, Harare, London and New York were popular, if not always entirely appropriate, case studies. Candidates that did refer to impacts on the natural environment (i.e. issues to do with deforestation, loss of habitats, air and water pollution) scored highly here but too many wrote about impacts on people rather than the natural environment or about the cause rather than the impacts. It was clear the expression 'urban sprawl' was not well known by many candidates as they wrote about all zones of the city rather than the outer areas. This tended to be especially true for answers relating to New York and London. Some excellent answers were seen about Harare with place specific detail on the urban fringes. Many of these answers illustrated the value of using a familiar local example rather than one from a textbook.

Question 3

- (a) (i) Not all candidates who chose this question were able to use the simple scale to measure the width of the entrance.
- (ii) Most candidates identified limestone and chalk though some reversed the answers.
- (iii) Whilst there were a few very good responses referring to erosion of the limestone followed by the consequent erosion of the less resistant sand and clay behind it to form the cove, many responses did not refer to the process of breaking through a line of weakness in the limestone for this to happen.
- (iv) This question differentiated well with weaker candidates referring to tourism whilst others referred to a range of valid ideas, including fishing, harbours/trade and settlement for example.
- (b) (i) Most candidates were able to identify at least one feature of the stack – references to the height, the narrow base and layers of rock were most common.
- (ii) Whilst some candidates appeared to guess most were aware of the sequence of erosion resulting in the formation of a stack. There were some excellent explanations, using correct terminology and supported by labelled diagrams. Most gained their marks in the text though without recourse to the diagram.
- (c) This was quite well answered by many candidates, though very few answers gave place-specific information about their chosen coral reef area. Areas chosen included the Seychelles, the Maldives and the Great Barrier Reef. Common correct responses were the need for warm water, shallow and clear water for sunlight/photosynthesis and calm waters. Valid statistics were used by some candidates, which is a good strategy to use to elaborate on simple points made. Some candidates described many human factors that would stop or destroy coral reefs, which was tangential to the question

Question 4

- (a) (i) Apart from those candidates who named St. Louis as a state, almost all got the correct answer.
- (ii) Most answers recognised the significance of the location of St Louis close to the river and to the confluence, using various terms for where rivers join/meet. Some confused tributaries and distributaries.
- (iii) The correct three methods were extracted for the article by the majority of candidates though a few suggested methods of their own or chose irrelevant items from the article. A few did not refer to the levees being made 'higher'.
- (iv) Whilst there were a few excellent answers referring to drainage basin processes generally this was poorly answered with many just describing the consequences of flooding. Few could describe a sequence of events that might increase the hazard due to settlement and economic activity as required.
- (b) (i) Although obvious features were correctly mentioned by many candidates, such as the rocks, rapids and plunge pool, a lot of answers listed peripheral items such as the vegetation which are not really part of the waterfall and generally the question was not high scoring with obvious features being missed by many.
- (ii) Futuristic ideas about the waterfall included its use for HEP, for tourists and indeed its complete disappearance from drying up however few described the more likely option of retreat and the differential effects of erosion on the different rock layers.
- (c) By far the majority of candidates chose exfoliation as the weathering process and most explained it well. Most were able to refer to expansion and contraction and developed the ideas, though some did not go on to refer to the stresses/pressures caused by expansion/contraction that result in peeling. A few mixed up expansion/contraction with hot/cold whilst others wrote about freeze-thaw weathering which is not exfoliation. The few candidates who attempted carbonation had little knowledge about that process, though a small number made some pertinent points. Most wrote about pollution and acid rain.

Question 5

- (a) (i) When defining a term it is important to define all words which are italicised in the question. Most candidates stated that 'international' meant another country but did not define 'tourist' i.e. someone who goes on holiday/vacation.
- (ii) The majority gave 60% for Europe and 10% for Asia and compared the data e.g. more than 50% from Europe/Europe has a higher percentage. A few just gave the data with no interpretation whilst a significant number gave 19% for Asia, a careless misreading of the key.
- (iii) There were many valid references to variable distance, affordability and level of development, though some struggled to clearly express their ideas here, whilst weak candidates simply suggested why tourist visit Kenya.
- (iv) This differentiated well with sound answers suggesting a variety of reasons for the increase (e.g. cheaper air travel, advertisements/Internet, longer holidays, and greater affluence) whilst others were brief and/or lacked clarity, sometimes simply listing reasons why people go on holiday rather than answering the question.
- (b) (i) This question was not well answered. Many candidates simply listed three tourist locations from the map or the key (e.g. major beach area, Tsavo National Park, Mt Kenya, coral reefs) rather than addressing the question and suggesting types of tourism relating to these features (e.g. wildlife safaris in game reserves, city breaks in Mombasa, climbing/hiking on Mount Kenya, diving on coral reefs etc.)
- (ii) Similarly this question was not answered well by many candidates, though some excellent perceptive answers were seen from a few. Apart from references to protecting the animals and bringing jobs for local people most candidates could say little about how sustainability would be helped by the creation of game reserves and national parks. It seemed that some were not familiar

with the concept of sustainability and simply described why National Parks and Game Reserves would attract tourists. Keeping future tourists coming was often implied but little more.

- (c) This was generally well answered, although the named area given was often a large country such as Kenya or Zimbabwe rather than a more precise named area which limited the maximum mark awarded. Most candidates gave benefits and problems, though did not always focus on what these were for the local people as required in the question. Differentiation was achieved, with more developed balanced answers achieving high marks and place detail appearing in some answers.

Question 6

- (a) (i) Well done by most though a few gave 10% instead of 12/13%.
- (ii) Almost all candidates effectively compared the primary and tertiary sectors in Japan and China although some gave totally separate statements with no comparison or figures with no interpretation.
- (iii) Two marks was common here. Most candidates correctly gave farming or mining for primary employment; many wrongly gave car assembly for the hi technology industrial park instead of computer- linked activities; and shops, banks, insurance companies, education and hospitals were all accepted as possible service industries in the CBD.
- (iv) The responses to this question were in the main disappointing; apart from mechanisation and people moving for better paid jobs in secondary/tertiary industry, few other answers were seen. There was little reference to increasing food imports or physical activity being hard/undesirable or resources running out or people becoming educated/skilled so could be exploited outside the primary sector. The consequences for a changing employment structure as a country develops were not well understood.
- (b) (i) Most candidates recognised that manufacturing had increased as well as rubber/tin had decreased and some, but by no means all, scored a third mark for accurately using statistics. Reading the percentages on a pie chart is an important skill for candidates to practise.
- (ii) Many candidates wrote about newly industrialised countries but missed the point of the question which was to explain why they attracted high technology industry. The reasoning expected included low cost land and labour, skilled labour and government incentives plus a good transport infrastructure and all these ideas were seen, however only from a minority of candidates.
- (c) The Amazon Basin was a popular choice here, though few developed references were seen to the immense impacts which commercial agriculture is having there on the natural environment. Rice farming was used as an example in various named areas, generally with more success. Valid responses concentrated on deforestation and loss of habitats, use of fertilisers and the death of aquatic life. Many candidates named entire countries, rather than more precise areas, such answers tended to be rather vague and/or simplistic. Although many candidates could describe various impacts fairly briefly they gave over much of their answers to describing the causes rather than developing the impacts. This question illustrates just how important it is to read the question and highlight key words. Not only did many of those who did not do so write about causes, but also many wrote about impacts for people rather than the natural environment.

GEOGRAPHY

Paper 0460/13

Paper 13

Key Messages:

In order for candidates to perform well on this paper they needed to be able to:

- ensure that examination rubric is followed correctly, answering 3 of the 6 questions only.
- read the question carefully – it is important to spend time doing this. If it helps underline command words and words which indicate the context of the question.
- know the meaning of, and respond correctly to command words – e.g. know the difference between describe and explain, be able to compare.
- identify the correct focus specified in the question stem – e.g. causes or impacts, natural environment or people.
- ensure candidates are aware of the scale of the question – city or country or area? Need to read the question carefully.
- use the mark allocations and answer space provided in the question and answer booklet as a guide to the length of answer required and the number of points to be made.
- developing ideas in the correct way for example development of impact rather than cause underline key words and key command words in the question to help identify this.
- perform basic skills such as interpreting graphs, photographs and maps of various types.
- know how to approach a question which asks for comparison.
- avoid direct lifts from diagrams when a question asks for interpretation of ideas.
- not simply relying on statistics for development in earthquake or volcano case study as these are sometimes incorrectly remembered.
- if the question asks for evidence or data from a source then candidates need to ensure they do this to get full marks. Data needs to be used to support statements being made rather than just being lifted and presented in isolation.
- learn the meanings of key words in order to be able to define and accurately use geographical terminology. Key word glossaries for Centres to build up would be advantageous for candidates.
- write as clearly and precisely as possible avoiding vague, general statements – e.g. ‘it will improve standard of living’, ‘it will cause pollution/make a lot of noise’.
- write developed ideas wherever possible, especially where extended writing is required in the final two parts of each question.
- have a range of case studies so that appropriate ones can be chosen for the topics tested. Some seem to have too few case studies and try to apply them inappropriately.
- include place specific information in case studies, however care needs to be taken that this is not done at the expense of answering the question. Place specific information was lacking this year.

- when using the extra space at the back of the question and answer booklet make it clear that the answer is continued and indicate the number of the question accurately, many candidates do not indicate that the question is continued.

In general, topics to focus on that were not particularly well answered: population distribution; settlement hierarchies; using weather measuring equipment; infrastructure development; comparison of energy use between LEDCs and MEDCs and energy production in a country.

General Comments:

The examination was considered appropriate for the age and ability range of candidates and it achieved widespread differentiation. As expected the most perceptive and well prepared candidates performed superbly across the paper and some excellent geography was seen. Such candidates were familiar with, and able to cope with handling the wide variety of ways in which geographical data was presented to them, handled the skills involved and displayed a mature and sophisticated knowledge and understanding of the topics tested. Most candidates were able to make a genuine attempt at their chosen questions and attempted most sections, however clearly weaker candidates found it difficult to interpret tasks and write effective responses to some or all questions. In such cases it is difficult to determine whether their command of English hampered their performance or whether their geography was inadequate.

There seemed to be more candidates in this examination session that made rubric errors and answered more than 3 out of 6 questions and in many cases answered all 6 questions. There was little, if any, evidence of candidates being short of time. The handwriting of some candidates was difficult to read. Whilst it is accepted that candidates are writing under time pressure it is important that all answers are legible so that Examiners can mark them.

The following comments on 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

- (a) (i) Candidates were required to define the term 'international migrant'. Most candidates were able to do this and gained credit. However, some candidates reworded the term to be defined e.g. 'a migrant who moves internationally' which was not credited.
- (ii) Using Fig.1 candidates were required to identify the country where remittances form the largest percentage of the GDP and the country which receives the largest total amount of remittances. The vast majority of candidates got both answers correct – Lesotho and Nigeria respectively. However, a few put a figure in the 2nd space or Ethiopia. Some also got the answers the wrong way around.
- (iii) This question asked candidates to explain how remittance money sent home by international migrants may benefit people in the country from which they have migrated. Despite a lot of irrelevant focus on the value of foreign earnings most candidates made at least one relevant point and many gained full credit by listing ideas like 'buying food, paying for health care and/or education, housing' etc. Quite a lot of irrelevant material was seen referring to improving GDP/tax revenues etc. which would be unlikely to be influenced by remittances.
- (iv) Here candidates had to suggest what problems may be caused in countries from which large numbers of people migrate. Provided candidates wrote about the country 'from which large numbers migrated' they were successful and provided relevant references to 'loss of skilled workers, less workforce, ageing population, loss of males' etc. Many responses could not be credited as they focussed on the country to which people migrated.
- (b) (i) Using Fig. 2 candidates were required to describe one possible route of a migrant from Cameroon to Spain. The vast majority of candidates scored full credit although some odd or impossible routes were seen by a minority of candidates.
- (ii) Here candidates were required to suggest problems which may be faced by migrants who are living in MEDCs such as Spain. Generally this question was very well answered and all mark scheme ideas were seen with lots of good development. A few candidates focused on problems for the

country rather than those faced by the migrants themselves and a few on the problems of migrating that would be faced en route which did not gain any credit.

- (c) For a named area candidates were asked to explain why it has a low population density. Despite a minority of very good answers the overall response to this case study was weak. Many wrote about migration or low rates of population growth, others wrote about under population, few actually focussed properly on population density. Whilst a few marks could sometimes be picked up from the type of answers mentioned in the previous sentence such candidates rarely progressed beyond level 1. Australia and China featured regularly (Max 5 as a country was named rather than an area), though in reality few got anywhere near that as one child policy was irrelevant and Australian answers tended to be about distribution, with some credit usually being given for desert references. Most high scoring answers chose a large area such as the Sahara Desert or Antarctica or a mountainous part of a country – usually Southern Alps in New Zealand. These choices enabled candidates to develop points about climate, relief, access, resources etc. And therefore gain higher marks.

Question 2

- (a) (i) Candidates were asked to name the capital city of the Philippines. Almost all candidates answered 'Manila' correctly.
- (ii) Using Fig. 3 candidates were required to give two pieces of evidence which suggest that the most densely populated area in Luzon has the most services. Many full mark answers were seen, usually for reference to railways and airports.
- (iii) Here an explanation as to why large numbers of people live in squatter settlements in cities in LEDCs was required. Most candidates focused on people not being able to afford housing or the high cost of housing idea though better answers touched on other valid issues such as the lack of housing, the large numbers of migrants and/or the location close to workplaces or transport routes. The majority of candidates gained some credit here.
- (iv) This question asked candidates to describe four ways to improve the housing in squatter settlements. The question differentiated well as good answers were precise and focused on specific ways in which housing could be improved such as 'self-help schemes, build with bricks, supply electricity' etc. The weakest answers made four very general points often referring to 'Better ...' or focused on issues other than housing e.g. 'build schools, roads' etc.
- (b) (i) Using photograph A candidates had to give three pieces of evidence that the area is part of the CBD. This was generally well answered, with many scoring full marks. Most common responses included 'high buildings, busy roads, shops' etc. All mark scheme ideas were seen.
- (ii) Using photograph B candidates were required to suggest reasons why the mall was located outside the CBD of Maseru rather than in it. Some excellent developed ideas were seen; this topic was obviously well understood by candidates and many made good use of the evidence in the photograph. Once again all mark scheme ideas were seen and all candidates were able to gain some marks.
- (c) For a named example of a settlement studied candidates were asked to identify its main function and explain the reasons for its growth. This question was very poorly answered by many. The identification of the function was the key to achieving some marks here and many candidates did not seem familiar with the word, with lots of references to shanty towns and general reasoning for the growth of urban areas. The most common functions identified were capital city, ports and tourist resorts though most reasoning was simple and remained within Level 1. The few good answers seen with ideas fully developed related to case studies made within the region where the candidate lives, most commonly Auckland or Singapore.

Question 3

- (a) (i) After studying photographs C, D, E and F which show coastal landforms candidates were asked which photograph shows a feature which is formed by wind deposition the vast majority of candidates correctly identified photograph C.
- (ii) Candidates had to match the photographs with the correct landforms by using arrows. Usually all were linked correctly here but some errors were seen, the most common one linking Photo F to the stack.
- (iii) Here candidates were required to describe the conditions required for the formation of coastal sand dunes. Most candidates were aware that dunes were formed by the wind though a few wrote about marine processes. Better candidates were able to identify that winds need to be onshore though many just wrote about winds being needed. Lots of good references were made to supply of sand, obstructions and plants to colonize. Most candidates gave one or two creditworthy points.
- (iv) This question asked candidates to explain how a natural arch is formed. This differentiated well with some excellent full mark answers seen with the whole range from those who had absolutely no idea what an arch was, through to those who did little other than mention erosion by waves to those who could give the full sequence. Some missed out the cave formation sequence which is an essential stage in the development of an arch.
- (b) (i) Using evidence from Fig.4 only, candidates were required to describe three effects of the storm. The resource was well used with most candidates listing two or more creditworthy points. Those who lost marks tended to focus entirely on the 'beach, sea or lighthouse' rather than making points about other things such as the decreasing slope of the cliff or its retreat.
- (ii) This question asked candidates to explain how erosion by the sea may cause problems for people living in coastal areas. This was another good question for differentiation. Weaker candidates tended to just mention housing or make very vague points about threats to 'buildings' or 'land' or people's 'safety', whilst others suggested a range of problems, developing their ideas well. Most mark scheme ideas were seen.
- (c) Here candidates were required to explain the formation of a sand spit and include a fully labelled diagram. Most candidates had some idea that a sand spit was the result of coastal deposition, specifically the process of longshore drift. There were some full mark answers with clear and detailed explanation and a fully labelled diagram. Many attempts achieved top Level 1 or just got into Level 2 as the precision and depth of knowledge shown for example 'swash and backwash' was inaccurate or superficial.

Question 4

- (a) (i) Candidates were required to study the climate graphs in Fig.5 and select which area has the smallest annual temperature range. Most, but not all, candidates correctly chose Y to gain the mark.
- (ii) Again using the graphs candidates had to identify the graph which shows the climate of an area of tropical rainforest and an area of tropical desert. The majority of candidates, but not all, correctly identified 'Y and X' respectively gaining maximum credit. Where errors were made it was usually the identification of tropical desert.
- (iii) This question asked candidates to explain why tropical deserts have high daytime temperatures and low temperatures at night. Weaker candidates simply wrote about the sun shining in day but not at night, however there were lots of good answers seen providing candidates realised the significance of 'lack of clouds', they usually scored full marks.
- (iv) Here the processes which result in heavy convectional rainfall in tropical rainforests had to be described. Most candidates knew at least some of the stages of convectional rain processes with good descriptions of the processes listed in the mark scheme. Most at least were aware of the significance of evaporation/transpiration even if they could not develop the sequence further. Most mark scheme ideas were seen.

- (b) (i) After studying the graph in Fig.6 candidates were asked to describe the impacts of deforestation in Kalimantan, using evidence from Fig.6 only and to use statistics in their answer. Some just took each region and listed statistics for 1 mark max whilst others wrote about impacts of deforestation which were not shown in Fig. 6. Large numbers of candidates however scored well, noting the general overall reduction and the fact that south and/or east had a particularly large reduction. Statistics quoted were usually within tolerance for at least one of the provinces.
- (ii) This question asked candidates to explain why deforestation has taken place in many areas of tropical rainforest. This question differentiated well as weaker candidates tended to focus on little more than 'using/selling wood' whilst others developed points well, noting not only the specific reasons for deforestation (e.g. road building, ranching etc.) but also the fact that in many LEDCs the forests were being cleared to pay off debts or raise funds to trigger development. All mark scheme ideas were seen here.
- (c) For a named area candidates had studied they were required to describe the impacts of large scale deforestation of tropical rainforests on the local people and the local natural environment. The focus here was 'local' which was picked up by most but not all candidates. There were some excellent responses, and most did manage to enter Level 2 on the strength of a reference to destroying habitats and threatening species with extinction. Most answers were about the Amazon but a small number of excellent answers related to Indonesian rainforests, specifically to the impact on people of resettlement schemes. The precise and detailed knowledge shown in them illustrates the value of using 'local' case studies rather than textbook examples.

Question 5

- (a) (i) Candidates were required to study the maps of Africa in Fig.7 and then select the country from a list which has the best access to both clean water and improved sanitation. The vast majority of candidates correctly identified Egypt and gained the mark.
- (ii) This question required candidates to complete Fig.7 by shading the appropriate country with the correct shading for the percentage shown with access to clean water and access to improved sanitation. Most candidates shaded both countries correctly, those who did not gain full credit shaded Nigeria wrongly and sometimes put both lots of shading on the same map.
- (iii) Candidates were asked to explain how sanitation can be improved in LEDCs. The most common response was 'education about.....' which was valid but more was needed for the maximum credit. Better candidates referred to issues such as sewage pipes, treatment plants etc. though answers about water supply (which were then repeated in (iv)) and hospitals suggested that the word 'sanitation' was not well known by all candidates. However, all mark scheme ideas were seen.
- (iv) This question asked candidates to describe four different ways in which water supplies can be increased in a country. Most candidates were able to gain some marks here and there were many scoring 3 or 4 marks. Some candidates lost marks through vague references to pipes and conservation strategies, which needed more precision and/or development for credit. Also there were many mentions of seawater. To use seawater for water supply it needs to have the salt removed not just be cleaned as some suggested. Most common responses were 'build dams or reservoirs, wells, collect rainwater in tanks' though all mark scheme ideas were seen.
- (b) (i) After studying Fig.8 candidates were required to describe the changes which took place to Lake Chad between 1963 and 2001 using only evidence from the figure. Most candidates made very good use of the resource and scored 2 or 3 marks. Marks were mostly awarded for 'smaller size of lake, totally disappeared from Niger and Nigeria, vegetation where lake used to be'.
- (ii) Candidates had to suggest the likely impacts of the changes to Lake Chad on local people. This question differentiated well, weak candidates simply mentioning lack of water or the need to travel further for it, whilst others looked at several issues, including the positives resulting from the creation of new land/vegetation, developing their ideas and showing good understanding. Again, all mark scheme ideas were seen.

- (c) For a named country or area they have studied candidates were asked to identify a form of energy which is used and describe how its use threatens the natural environment. Most candidates could identify a form of energy used in their chosen country or area. Fuelwood/charcoal was often referred to if an LEDC was chosen and most candidates were able to achieve at least Level 2 for references to how its use threatens the natural environment as a result of deforestation. Some however made irrelevant references to impacts on people. Candidates who chose a variety of MEDCs referred typically to nuclear power or fossil fuels, the latter being more successful generally as it enabled development of ideas relating to acid rain and global warming. Surprisingly a significant number chose wind power, sometimes making the point that it has limited impact on the natural environment which then did not gain credit.

Question 6

- (a) (i) Candidates were required to study the graph in Fig.9 and then mark and label a cross in the correct position to show the GDP per person and percentage of GDP from agriculture for India. Most candidates were able to correctly plot this information however some misread the scale for percentage of GDP from agriculture and were not credited.
- (ii) Using Fig.9 only candidates were required to state the general relationship between GDP per person and the percentage of the GDP that comes from agriculture and support their answer with statistics. Almost all correctly stated the inverse relationship in some way, and most supported it with appropriate statistics thereby gaining the credit available.
- (iii) This question asked candidates to explain why many people in LEDCs are subsistence farmers. Most candidates were able to gain some marks here. Answers commonly referred to one idea such as 'the need to feed the family or the lack of money to invest in fertilizers or machinery etc.' or 'the lack of land'. To score full marks several ideas were needed rather than such a narrow focus.
- (iv) Candidates had to explain how commercial farmers in MEDCs are able to produce high yields per hectare. This was generally answered well with many candidates scoring 3 or 4 marks. References to ideas such as 'use of irrigation, fertilizers and pesticides' were very common. Although all mark scheme ideas were seen.
- (b) (i) After studying the flow diagram in Fig.10 candidates were asked to explain how human actions can cause soil erosion using Fig.10 only. The flow diagram was well interpreted by most candidates and generally answers were clearly expressed with sufficient ideas for full marks. All mark scheme ideas were seen.
- (ii) Here candidates were required to explain how farmers can prevent soil erosion and maintain soil quality. This question differentiated well with some excellent answers at the top end. Lots of developed references were seen to 'rotation of crops, fallowing and specific soil conservation techniques etc.' along with the more simplistic points which reversed the ideas from the previous question and suggested 'no deforestation, overgrazing or overcultivation'. Weaker candidates at least gained some marks but limited their marks by doing that.
- (c) Here for a named area that candidates have studied they were asked to identify the type of farming which takes place and explain why the land is used in this way. This question was poorly answered by many candidates with many not being able to home in on an area and correctly identify a type of farming where the land use could be explained. Those who did so were able to then explain this by reference to 'climate, soil, relief, access etc.' However, this was typically only done by using simple statements. The best responses related to dairy farming in various parts of New Zealand or rice farming in various parts of Southern Asia. Some candidates developed points well for these examples referring in some detail to physical and human factors. The key to success here is to look at a small scale as many answers were just too broad and as a consequence vague and simplistic.

GEOGRAPHY

Paper 0460/21

Paper 21

Key Messages

- Good answers were focused on the questions asked and often were concise, making excellent use of the resources provided in the paper.
- Candidates who scored highly spent sufficient time making sure that they understood the details of the resources provided before starting to answer the questions. This includes studying the map with its scale and key.
- Candidates who scored high marks clearly understood the different meanings of the command words in questions, e.g. *describe*, *describe the differences* and *give reasons*.
- Where only one or two lines are provided for an answer, only brief answers are required.

General Comments

A range of responses were seen to this paper. Illegible handwriting was a feature of some scripts. Almost always, candidates answered the questions within the spaces provided and avoided the use of additional sheets. Candidates were usually able to complete the paper in the allotted time.

Question 1

- (a) Most candidates scored good marks in this section and used the map key carefully. Almost all candidates identified the Vonko river correctly in (i) and the dip tank in (ii). In (iv), a mark was only given where the candidate gave the complete answer of 942 metres. Copying of a full line of the key showing a number of symbols should be avoided as no marks can be awarded for this. For example, in (vi) where the correct answer was *reservoir*, those who wrote *well*, *spring*, *borehole*, *windpump*, *reservoir* did not receive credit.
- (b) This question was answered well. Most candidates scored at least two and usually three or four marks. Most recognised that the river has many tributaries, flows towards the east and meanders. Fewer candidates correctly estimated the width of the river to be about 100 m.
- (c) There were mixed responses to this section. In (i), all alternatives were offered but those who correctly ticked *linear* often went on to score full marks. In (ii), there were a number of alternative correct answers including being *next to roads/tracks*, *cultivation areas* or *small rivers*. The main type of building shown was *huts* but not *huts and staff quarters*.
- (d) A significant number of candidates did not attempt this section at all. Amongst those who did, there was room for improvement in the accuracy of the plotting of the arrows in all parts of the question. Some answers were not sensible, for example, that the Nkazhe river in (i) is within the valley and not part way up the Banbanika hill. In (iii), there was some confusion between the tracks (three possible correct options) and the road and contour lines.
- (e) This section was generally answered well. Various answers were offered in (i), where the correct answer was *cultivation*. In (ii), most candidates correctly stated *east* and in (iii) *5 km*. There were mixed responses in (iv) but the majority correctly answered *980 m*.

Question 2

- (a) Some candidates scored full marks by correctly describing and linking the source and destination for 5 of the arrows shown. Marks were also available for general descriptive comments such as *migration is mainly outward* or *to the west* or *to MEDCs*. Those candidates who tried to explain the pattern or comment on the causes and results of the migration flows did not score as well. This demonstrates the need for careful understanding of the command words as mentioned above.
- (b) Most candidates correctly identified *Canada 18/19%* in (i) and *France 4.9 million* in (ii). In (iii), the required answer was to recognise the much larger number in the box for the USA. Some candidates failed to state this, preferring to offer more complex responses that went beyond the information given in Fig. 5 and thus did not score.

Question 3

- (a) There were many incorrect answers in this section with only a small proportion of candidates gaining full marks for stating **X** – *plateau*; **Y** – *interlocking spurs*; **Z** – *V – shaped valley*.
- (b) Some candidates lost credit through stating features that it was not possible to see in the photograph. Whilst there were many possible acceptable answers for both the river and the relief of the valley, few candidates got much beyond the *meanders* and the *small or narrow river*. Often answers included comments such as *there are no waterfalls or rapids* and *an ox-bow lake may form in the future*, neither of which were relevant. Other candidates made irrelevant references to other aspects of the photograph such as the vegetation, human activities and weather.

Question 4

- (a) Most candidates received credit on this question, noting the location in the N/NE of South America, along the Equator, inland or reaching to the east coast.
- (b) Those candidates who understood the idea of the annual temperature range were able to compare the 7°C range of Arica with the 1°C range of Iquitos, noting that the former was larger. Some candidates did not appreciate that this section asked for the differences between the ranges at the two locations and others compared mean monthly temperatures instead of the ranges.
- (c) This section assessed knowledge with understanding but generally candidates did not have a very thorough knowledge of the topic. In (i), a few candidates had a clear understanding of high pressure and descending air in desert latitudes but too often candidates stated simply that the very low rainfall was *because it is a desert*. Equally, in (ii), candidates often stated that the high temperatures were due to being *near the Equator* without any further reasoning, e.g. to angle of the sun, length of day and night or cloud cover.

Question 5

- (a) Most responses were of a good standard, with accurately drawn pie charts, shaded with the correct key. Full marks were given to those where the smaller segment measured 114° – 116° and the correct key was used for both segments.
- (b) In (i) most responses gained the mark and gave textbook definitions. In (ii) many candidates again gained credit but others failed to give form of comparison, despite the question asking for differences. Answers such as *intensive farms use fewer machines* or *intensive farms have a higher labour input* were given credit.
- (c) There were some very pleasing answers in this section and very good understanding of the written passage (Fig. 9) was generally apparent. Many candidates were awarded full credit in this section. In (i), candidates recognised physical inputs such as fertile soils, flat land and low precipitation. In (ii), they recognised fertiliser, seeds, research and machinery. In (iii), the commercial nature of wheat farming was usually correctly identified and relevant evidence was quoted. In (iv), extensive farming (backed up by the large size of fields or farms or lack of irrigation) or intensive farming (backed up by the large amount or increased use of fertiliser) were both acceptable answers.

Question 6

- (a) Almost all candidates completed the divided bar chart accurately and shaded it correctly.
- (b) Those candidates who studied Fig. 11 carefully performed well on this question. In (i), most made the correct choice of Maritsa as it was close to the motorway. (Parvomay was also acceptable being close to the main road). In (ii), most chose Kuklen as it was close to the airport. In (iii), all sites had rail links so *no difference* was correct. Parts (iv) and (v) proved to be the more challenging parts of the question and there were varying responses. Kuklen due to being closest to the urban areas was correct in (iv) and Maritsa was correct in (v) as it had by far the largest industrial site. In (vi), most identified Kuklen as being closest to the resorts in the Rodopi mountains. A few candidates appeared a little short of time in this question and some incomplete responses did not gain credit.

GEOGRAPHY

Paper 0460/22

Paper 22

Key Messages

- Candidates should be encouraged always to give the units in numerical answers, e.g. metres above sea level or degrees Celsius
- When giving six figure grid references candidates should use the method described in the syllabus, particularly when giving the third and sixth figures of the reference
- In questions asking for descriptions of features in photographs, candidates should stick to the brief in the question and not make further more speculative statements
- Paper 22 is a skills paper with great emphasis on Assessment Objective 2. Candidates should be aware that questions ask them to focus on the data provided, especially when they include instructions such as “Using Fig. 9 **only**...”

General Comments

There were no questions on the paper which candidates found particularly difficult or easy and the better candidates performed well in all the questions. However there were parts of each question which candidates found to be demanding. These are described below.

Question 1

- (a) Candidates generally identified feature **A** as a *post office*, although a few incorrectly answered *hospital*. Most candidates identified feature **B** as a *bridge*. Candidates generally gave the height of the spot height at **C** as *1016 m* and the height of the contour at **D** as *1000 m*. Many candidates failed to give the units and lost credit as a result. The type of road at **E** was generally identified as *gravel or earth*, although a significant number answered *narrow tarred*.
- (b) Candidates were able to quote evidence of mining in the area such as *mining or prospecting trench, mine dump, staff quarters, power line, reservoir and the mine name*. Some candidates referred to features that were not present in the area such as *quarry or excavation or huts*.
- (c) The grid reference question was not answered as well as in recent examinations, with the third and sixth figures causing problems. Many candidates gave the bearing correctly as being between *35 and 37 degrees*. Most candidates gave the correct compass direction as *north east*.
- (d) Although many candidates scored full marks, many answers received less credit than this. The three points on the cross section could have been plotted by measuring the distances on the map using the edge of a sheet of paper then transferring these measurements to **Fig. 2**. Most candidates used the correct method of annotation, as shown by the example of *track* on **Fig. 2**.
- (e) This was very well-answered. The final point of *drainage flows to the west* being the most difficult for candidates, the correct answer being the *area at Judds Farm*.

Question 2

- (a) Most candidates identified **A** as a wind vane, **B** as an anemometer and **C** as a maximum-minimum or Six's thermometer. The spellings were often inaccurate but examiners awarded the marks so long as the meanings were clear and unambiguous. **C** was occasionally wrongly identified as a wet and dry bulb thermometer.
- (b) Most candidates correctly identified the direction from which the wind was blowing as *north*, however *south* was a fairly common response.
- (c) This was not a well-answered question. Labels often pointed to the mercury or to the upper surface of the mercury.
- (d) The responses to this question were variable. The correct answers were 5 °C, 17 °C and 15 °C. For the hottest and coldest temperatures, candidates sometimes used the upper ends of the indices as opposed to the lower ends. It was very common for candidates to fail to give the correct units in their answers. These candidates failed to gain full credit as a result.

Question 3

- (a) This was very well-answered and full marks were common. The points most frequently given credit were *tall trees, dense vegetation, bare trunks, canopy, emergent, broad leaves* and *bright flowers*. Some candidates gave textbook descriptions of features of tropical rainforest which were not visible in the photograph, such as *buttress roots* or *lack of undergrowth*.
- (b) Candidates often found this difficult and even the hottest temperature of 28 °C was not always stated correctly. For the annual temperature range, candidates were expected to subtract 26 from 28 and give the answer 2 °C, although errors in graph reading were carried forward so that candidates were not doubly penalised. For the mean temperature of the hottest month *hot* or *quite hot* were accepted but not *very hot* or *warm*. A number of candidates incorrectly answered *cold*. For the annual rainfall *high, very high, wet* or *heavy* were accepted but not *quite high*.

Question 4

- (a) This proved a difficult question for many candidates. The most commonly credited points were the *small houses, houses on stilts, built on a steep slope* and *bright colours*. Points such as *single storey, variable size, few windows* or *gently sloping roofs* were quoted less frequently. Candidates often referred to the vegetation or made speculative statements about the residents or the quality of the housing which were not given credit. These went beyond the brief of the question. Candidates should be encouraged to describe what they can see in the photograph.
- (b) This was very well-answered. For the minimum population for a supermarket, answers between 7932 and 8962 were accepted, with most candidates giving the latter answer. 8000 was also quite a common answer also. Almost all candidates had the correct order of the settlement hierarchy as **D E B A C**.

Question 5

- (a) Most candidates gave good descriptions of the distribution of the areas with the highest output. They often referred to the area in the south-east next to the international boundary and the area in the south west on the coast.
- (b) The vast majority of candidates were able to complete the scatter graph accurately. The relationship between the two factors was not straightforward and many candidates found it difficult to describe. Credit was given to those candidates who said that there was no relationship and to those candidates who said that there might be a slight negative or inverse relationship.
- (c) A wide variety of responses were given credit. The most common of these included: *rainfall, climate, relief, soils, insects, skill, machinery, capital* and *fertiliser*.
- (d) This was well-answered by many candidates. The correct order was low or decreased outputs, *little surplus to sell, no capital to invest, no fertiliser or improved seeds, decreasing soil fertility and yields*.

Question 6

- (a) Most candidates correctly identified two from Burma, Laos and Thailand. Only occasionally were China or Vietnam wrongly identified.
- (b) This proved to be a difficult question for many candidates. Those candidates who measured carefully gave 4200 km as the answer. However, because the question included the command word *estimate*, 3600 km was also credited.
- (c) The question asked how dam construction on the Mekong River might cause problems to people living along the river. Candidates were instructed to use **Fig. 9 only**. Those who followed this instruction scored high marks. They referred to possible effects on agriculture in the lower part of the river, of water and sediment being held back by the dams. They referred to the possible effects of dams on fish movement and the consequences for those who relied on fish in their diet. They referred to dams or lower flows impeding navigation and restricting trade. Other candidates ignored the instruction to use **Fig. 9 only**. They failed to gain credit by referring to the effects of flooding, displaced people and pollution.
- (d) The better answers noted that the fact that the river flowed through several countries might lead to disagreements. They then went on to refer to specific areas of possible conflict. For example, they referred to water use for irrigation by people upstream that would lead to conflict with people downstream who wished to use the water for domestic supply. Others pointed out that dams for HEP in one country could lower river flows and affect the trade routes of countries further downstream.

GEOGRAPHY

Paper 0460/23

Paper 23

Key Messages

- Candidates should be encouraged always to give the units in numerical answers, e.g. metres above sea level or degrees Celsius.
- When giving six figure grid references candidates should use the method described in the syllabus, particularly when giving the third and sixth figures of the reference.
- In questions asking for descriptions of features in photographs, candidates should stick to the brief in the question and not make further more speculative statements.

General Comments

This paper was comparable with previous sessions, with **Question 2**, **Question 3**, **Question 4** and **Question 5** all being of similar difficulty and including some easier sections such as **Question 2(a)(i)**, **Question 3(c)(i)**, parts of **Question 4(a)** and **Question 5 (b)(i)**. **Question 1** and **Question 6** were more difficult. Also omission of question parts was not particularly common on this paper.

Question 1

Overall marks for the mapwork question (**Question 1**) could be improved through greater attention to accuracy and detail.

- (a) The map extract was for the Ruya River area of Zimbabwe and candidates were directed to look at the area shown in Fig. 1, in order to identify the features. **A** was a *dam*. **B** was *road – other* or simply *other*. The spot height **C** showed *1205m*. **D** was a *reservoir*. **E** was *orchard or plantation* and **F** was a *dip tank*. Many candidates scored well on this opening question though a few candidates omitted to give the units of metres on the spot height. Other common errors were *rapids* instead of *reservoir* for **D** and *bridge* instead of *dip tank* for **F**.
- (b) Candidates were directed to look at three different settlements and name the appropriate rural settlement pattern for each. As the command word was to “name” and the options were given, these were the only acceptable answers. Thus, in grid square 0117 the huts were *nucleated*, Madzonga and Chipuru in 0312 were *linear* to the road, and in 0417 and 0418 the settlement was *dispersed*. Most candidates got these correct.
- (c) **Fig. 2** was a cross section which needed to be labelled appropriately. The best way to do this was to measure on the map and then use the same measurement on **Fig. 2**. Most candidates attempted this and followed the example which showed them how to place and label their arrows. However accuracy was an issue with some responses, suggesting that some candidates had just made a judgement as to the position rather than measuring.

- (d) The power line crossed the River Ruya in 0614. It then headed towards the northern edge of the map on a bearing of 340°. Since options were given, there was no need for measurement here, though candidates may have found it helpful to look at, and roughly align, a protractor. A significant minority of candidates did the bearing from the wrong direction, getting 160° and showing the importance of reading the question carefully to know which way to measure.

Following the power line, it crossed a hut at 058169. Common errors here were 059 for the first half of the grid reference and 170 for the second half.

- (e) The physical features of the River Ruya in the section indicated included: *meanders, tributaries, variable width, rapids, islands* and *flowing east* with a *gentle gradient*. Candidates who focussed on the river usually scored three marks, but some looked at the land on either side, which was generally irrelevant. A few took the R to mean reservoir. Flow direction isn't easy on a gentle gradient but the section with rapids was bounded by a clear contour from which the easterly flow could be deduced. Those with the flow direction as west also tended to have the tributaries taking water from the river and some made this mistake even with the correct flow direction.
- (f) The final part of the mapwork question proved to be difficult. Candidates were directed to the area shown in Fig. 3 and had to describe the distribution of cultivation within that area. They were told to refer to relief and drainage, so describe the distribution of cultivation in relation to the relief and drainage. However, many saw the last sentence and wrote about relief and drainage, with very little, if any, reference to cultivation. Others responses referred to areas of bush and grassland as cultivated and so wrote about those areas. Those that had the right idea generally got credit for pointing out that the cultivation was *around the hill* or *on the lower slopes* or at a quoted height. However, they commonly went on to say that the cultivation was next to the river, on flat land, which was not the case. The slope was *gentle* but not flat and the cultivation avoided the area immediately adjacent to the river. A few did mention the gentle slope and *in the east* or *east of the river*.

Question 2

- (a) Most candidates correctly named the volcano in Photograph A as Cayembe. This was the only one on the equator line and the only possibility for a photograph facing east. Incorrect answers were commonly Reventador (also close to the equator) or Sangay.

The volcano was *conical* in shape with *steep slopes* leading up to a *snow covered peak*. The slopes were dissected by *valleys* leaving *ridges* between. There was also a mark for vegetation, covering the physical features in the foreground: *bushes, trees, grass* or *dense vegetation*. Most candidates got at least 2 of the 3 available marks: usually the vegetation and snow. A few candidates did not read the question carefully and tried to explain the form of the volcano.

- (b) **Fig. 4** clearly showed direction of plate movement as converging, and showed a destructive boundary. The denser plate label needed to be on the Nazca Plate. Many candidates knew the boundary type but the label was not always in the right place.

The nearest volcano to the plate boundary was 325km away from it. As answer options were given, it was not necessary to measure accurately, nor to determine exactly which volcano was the closest and most candidates had the correct answer.

In **part (iv)** candidates had to simply say that one plate was *going under* another plate. It was not necessary to explain the details of which plate was which in this case but those who did this generally showed good understanding.

Question 3

- (a) **Fig. 5** showed a wet and dry bulb thermometer and candidates were asked to name the two liquids involved. **A** was inside the dry bulb thermometer and any standard thermometer liquid was acceptable, such as mercury, alcohol or spirit. **D** was the liquid in the separate reservoir: water. Many candidates had correct answers and there were some creative guesses from those who were not sure.

- (b) **C** was a wick linking **D** to **B**, so that the water could travel to bulb **B** and keep it wet, thus enabling evaporation to cool the bulb and give the lower wet bulb reading. Other candidates thought that the connection was necessary so that the thermometer could record the temperature of liquid **D**.
- (c) The depression of the wet bulb was 4°C. Candidates also had to record the two thermometer readings for full credit – the dry bulb temperature was 28°C and wet bulb temperature was 24°C. A few lost one mark as they had recorded these the wrong way round. A few others had misread one of the thermometers in which case error carried forward was applied to their calculation and on into **part (ii)**, where the answer from **part (i)** was to be converted to relative humidity by using **Table 1**. A correct answer to **part (i)** led to a relative humidity of 72%. Many had done this correctly but a few had strayed from the correct row or column of the table and gave an adjacent figure. Some of those who wrote 72 omitted % or put 72°C.

From **Table 1**, scrutiny of the figures, in any of the rows, showed that there was an inverse or negative relationship between the depression of the wet bulb thermometer and the relative humidity. Some candidates complicated their answer by referring to the dry bulb reading too, but many had a correct answer for this part of the question.

Question 4

- (a) **Fig. 6** showed population data for the UK and candidates were asked to complete it by adding a labelled line at 57.3 million. Most had done this correctly, though there were a few errors with scale, some having the line on 57 and others at 57.6.

Even those who were not sure of the scale were able to see the 10 million increase from 1961 to 2011 and there were very few mistakes with this. Not everyone was able to correctly translate this to a percentage. Some assumed 10 million was 10%, but 20% was the correct answer.

By comparing the distances between the lines, many candidates were able to see that 2006 to 2011 saw the largest growth in a five year period. The smallest growth over a ten year period was a little more difficult. The correct answer was 1976 to 1986 but some opted for 1971 to 1981 or took a five year period from this time of slow growth.

- (b) The natural population change for 1961 was $17.9 - 12.0 = 5.9$ per 1000. Many had a correct calculation but a few had tried to include the net migration figure so 35.9 was a common error.

There were two marks for **part (ii)** as there were two contributing factors causing population growth. Most candidates noted the increased birth rate and reduced death rate, or the fact that the birth rate was higher than the death rate, resulting in a natural increase, and many quoted figures to back up their statements. However, relatively few referred to migration. Some said that migration increased without reference to the directional aspect. Those that wrote about immigration exceeding emigration, or the fact that net migration was positive, gained credit.

Question 5

- (a) Candidates often find triangular graphs difficult. However many candidates had an accurate plot for Brazil and this was perhaps due to the additional data for the already plotted Ghana, given in **Table 3**, since they could use this to help them work out which axis to use for each figure.

Similarly there were many correct answers for **part (ii)** where 51%, 52% or 53% were accepted. 66% was the most common mistake, where candidates had read from the correct axis but had reached it from the wrong direction, by following the lines for tertiary industry.

- (b) Most candidates successfully ranked the countries in **Table 5** and the resulting order turned out to be the same as in **Table 4**, which was one of the possible comments for a mark in **part (ii)**. GDP per person and employment in tertiary industry are directly proportional so as one increases, the other increases. Most candidates noted this and then backed it up with data usually choosing one or both of the extremes: Norway and Ghana.

In **part (iii)**, candidates had to suggest why percentage of employment in tertiary industry is linked to GDP per person. Many mentioned the idea that tertiary industry has higher wages, or makes higher profits, resulting in a higher GDP but it could also have been approached in the other way, with higher GDP meaning that people could afford to pay for services. Weaker candidates found this difficult and some just reiterated the relationship deduced in **part (ii)**.

Question 6

- (a) Between 19% and 21% of the people in Orlando worked in leisure and hospitality. There were many correct answers for this. The most common error was 72%, due to 72° being the angular size of the segment.

Transport benefits from tourism since tourists won't have their own vehicles with them and so have to hire cars or use public transport. They also take tours and need transport from the airport or seaport as well as the transport arriving at those locations. The most common correct answers mentioned public transport, but a lot of answers were rather vague.

Primary industry benefits from tourism through the increased demand for food and also the supply of raw materials for handicrafts as souvenirs. Again there were vague answers here, such as "more resources would be needed" and some candidates decided that primary industry wouldn't benefit at all.

- (b) The last section of the paper was a piece of extended writing on why large numbers of tourists visit urban areas. There were plenty of possibilities for credit and most candidates got at least three good points. Valid answers included presence of hotels and other places to stay, giving a variety of type and cost of accommodation, presence of airports, seaports for cruise ships, railway stations and good roads, shops, restaurants, night clubs, banks to access money, as well as a multitude of historical, cultural and sporting attractions and views from tall buildings. Many also argued that urban areas would be safer, have better cell phone and internet coverage and benefit from better advertising making the attractions "famous". A few responses confused urban with rural and others wrote about urban areas without the link to tourists which tended to limit the credit given.

GEOGRAPHY

Paper 0460/03
Coursework

Key Messages

No problems were encountered by Moderators during this session. Only relatively minor advice was given over a few issues, and these have been included in the reports sent back to individual Centres rather than being mentioned here.

Next year will be the last year under current arrangements for Paper 3. The changes for 2016 are not major, but a summary of what to be aware of is included below.

General Comments

As is usually the case, the entry in November was considerably smaller than for June. No major issues arose from the Centres entered in this session. All administration was completed fully and accurately, and assessments made in internal moderation from Centres were good.

The only issue to arise from the session was that some work from candidates was received that had not previously been submitted and approved in a proposal. There were a few ways in which candidates were perhaps not achieving as well as they might. Some of these could probably have been detected had a proposal been submitted at an earlier stage.

In relation to this, and a few other matters related to the Coursework element, there are some minor changes being introduced which will take effect from the June and November 2016 sessions that are worth being aware of.

The importance of submitting a proposal beforehand is emphasised; '*The proposals for the coursework that may be undertaken by candidates must be approved beforehand by Cambridge.*' Officers at CIE would be entitled not to issue results for non-compliance with the syllabus. This is an unlikely event, but does emphasise that CIE is willing to help Centres at an early stage by passing on the experience of Moderators over a number of years in advising on ways candidates can access good marks. It is also a useful check that the difficulty of the intended task(s) are broadly comparable to others being set in other Centres.

In previous editions of the syllabus, there was a requirement for all candidates within a Centre to have carried out the same investigation. Several Centres approached CIE requesting that candidates might be able to choose between two or more approved investigations within any one session. This has been reviewed and is a reasonable request. So the syllabus now states; '*The focus of assignments can be, but need not be, common to all pupils at a Centre.*' This might prove helpful to Centres that have a large number of entries, or more than one teaching set. It allows choice where different topics appeal to different candidates, and allows teachers with different areas of expertise to lead work where they can offer their best advice,

The greatest changes occur in relation to submitting a proposal to Cambridge and guidance that teachers can give.

For proposals, the advice given up to 2015, did not ask for any detail on the presentation of results, the analysis and interpretation of the findings or on making effective conclusions, evaluation and suggestions for further work. These three areas amount to 60% of the overall assessment, and Moderators frequently reported that it was in these areas that achievement was often the weakest. This was true for candidates of all abilities.

The main reason to account for this is that it is almost always the first time that candidates have been required to undertake such work and so have little idea exactly what is required of them. If this is spelt out in

the proposal, it can help ensure that there is an awareness all round of what might be expected. The three areas that differ in the 2016 version of the syllabus from previous editions are;

5 Presentation of results – drawing of maps to show settlement distribution, desire lines for certain services, graphs, etc. Candidates will select appropriate graphs to present their results.

6 Analysis and interpretation – candidates identify trends, patterns and findings, and explain what they mean in relation to what they set out to investigate.

7 Make effective conclusions, evaluation and suggestions for further work – candidates draw conclusions and identify the key pieces of evidence that support them. The evaluation indicates what worked well and suggests improvements in the light of hindsight. Suggestions for future lines of inquiry are identified.'

Following on from this, there has been some uncertainty as to what might be appropriate guidance to be given to candidates undertaking such work, and in particular, in the areas indicated above. Of course, teachers cannot tell candidates what they should put into their reports, but it is appropriate to give them an awareness of what is required and the kinds of ways available to them to do this. A section indicating what teacher guidance is appropriate has been added to the syllabus. The additional section is as follows;

Teacher guidance

The teacher is required to devise the coursework assignment, therefore appropriate guidance is an essential component of coursework. Appropriate guidance includes:

Introduction of the 'route to geographical enquiry'

Outlining the purpose and aims of the assignment

Teaching the relevant geographical concepts to allow the assignment to be placed in context

Discussion and instruction on data collection methods

Introduction of all appropriate presentation techniques

Ensuring a clear understanding of the requirements for the finished assignment including word counts and individual initiative required to access higher levels in the Generic Mark Scheme.

Some candidates will require more individual guidance in their choice of graphs, analytical comments or conclusions. The extent of guidance should be reflected in the level of marks awarded.

It should be noted that one of the areas included has been word counts. There were no particular difficulties noted in the current November session, but when many more Centres have been involved, Moderators have reported cases that have caused concern. Whilst a little margin can be tolerated, gross excess of 2000 words cannot be accepted. It is the equivalent to candidates being allowed to exceed the time allocated for a written paper. For work pitched at this level, there is little to be gained by excessive word length. Candidates who have discovered a great deal and can be concise in expression up to 2000 words will be demonstrating ability that can be well credited in Organisation and presentation.

There has been a very high standard achieved by a good number of Centres in the past. It is hoped that through these changes, standards overall might be improved and that candidate performances will benefit.

GEOGRAPHY

Paper 0460/41
Alternative to Coursework

Key Messages

Every examination is different but there are usually a few generic tips and key messages that need making that should improve candidate performance in future. Most of these have featured in previous reports but the same issues do keep coming up again despite the entry being a fresh batch of candidates with several new Centres. Here are a few key messages that the Examiners feel will benefit future candidates if they are passed on by teachers:

- When answering hypothesis questions that ask whether you agree or not, always give your opinion first before any supporting evidence. This will usually be Yes, No or Partially / To some extent. If you are asked to support your decision with data then statistics must be used from the resources referred to. Data is quantitative; evidence can be qualitative or quantitative. If you make an incorrect conclusion to the hypothesis you will gain no credit for the answer.
- When giving figures in an answers always give the units if they are not stated for you.
- Read questions carefully and identify the command word e.g. *Describe, Explain*.
- When asked to compare, make judgements e.g. *higher, lower*, rather than just list comparative statistics.
- Check you are using the resources that a question refers you to, e.g. *Use the data from Table 1 and Figs. 2 and 3 to support your decision*.
- Attempt all completion tasks on graphs, tables or diagrams – not all the answers required are on lines and in writing. Many candidates are missing out on relatively easy marks this way.
- Take into account the marks awarded for each question. Examiners do not expect you to be writing outside of the lines provided so do not write a paragraph when only two lines are given – this approach will waste time.
- If you have to write more than the lines allowed indicate this with a phrase such as (*continued on additional page*). This is very helpful to the Examiner in finding your continuation of any responses.
- When completing graph work use a dark-coloured pencil or pen as scripts are scanned for marking and light colours do not always show up. Always shade bar graphs and pie charts accurately.
- When you think you have finished, check that you have not missed any questions out. Some questions are hard to find if they are on pages with a lot of graphs or maps. Make sure you have answered the questions on every page. This applies especially to questions where you are asked to complete tables, diagrams, graphs or maps.

General Comments

Most candidates found this examination enabled them to demonstrate what they knew, understood and could do. The overall range of marks was similar range to previous years - with weaker candidates scoring on the practical questions, such as drawing and interpreting graphs and tables, and candidates of higher ability scoring well on the more challenging sections requiring explanation and judgement especially regarding hypotheses. **Questions 1 and 2** were very similar in terms of difficulty.

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 significant 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 appropriate fieldwork techniques and equipment. Particular questions where candidates did not score well often related to them not carefully reading the question, for example

Question 2(a) where candidates were required to identify features of the central point of the CBD rather than just the CBD area. As in some previous papers **Question 1 (e)** required candidates to suggest a suitable fieldwork investigation methodology and **Question 2(f)** required candidates to suggest improvements to the investigation methodology. Such questions are frequently included on this paper and are an area which Centres should practise with candidates. However, it is not good practice to develop a series of generic improvements which may apply to all fieldwork as such suggestions tend to be vague and not worth credit.

Centres need to realise 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 **Questions 1(a) (ii), 1(c) (i), 1(d) (i), 2(b) (i), and 2(b) (ii)** focused on specific equipment and techniques commonly used in fieldwork. Centres are encouraged to carry out basic fieldwork with candidates, especially using simple techniques which can be done on the premises or in the local area.

Comments on Specific Questions

Question 1

- (a) (i)** Most candidates scored two marks by putting the labels in the correct boxes. Where candidates made an error it was by reversing the labels for spilling breakers and plunging breakers.
- (ii)** Answers varied in detail. Weaker candidates often referred only to 'counting waves' with no time reference or how they would identify them breaking. Better candidates developed their ideas by referring to a time period and some fixed point to count the waves breaking against.
- (b) (i)** Almost all candidates correctly calculated the average wave frequency.
- (ii)** Some candidates did not seem to be familiar with a dispersion graph. A significant minority did not attempt the question whilst other just plotted one point at 2 on the horizontal scale or plotted five measurements across the horizontal scale rather than plotting the frequency at 2.
- (iii)** Most candidates correctly identified waves on beach A as destructive waves and those on beach B as constructive waves.
- (c) (i)** The question provided good differentiation between candidates. Candidates who were familiar with the fieldwork task wrote detailed descriptions of the process and how the various pieces of equipment would be used. In contrast weaker candidates were vague in how the clinometer would be used to measure gradient and what the ranging poles should be used for. They made vague statements such as 'measure with the clinometer' and 'put the poles at the two ends of the beach' with no understanding of how and why these should be done.
- (ii)** Most candidates made the correct judgement that the hypothesis was true and related their judgement to the profile and wave frequency of both beaches. Some candidates failed to identify which beach had the higher wave frequency and steeper profile. Other candidates mistakenly compared the height of the two beaches rather than the gradient of the profile. Few candidates managed to give accurate statistics of wave frequency and beach height in order to gain maximum marks.
- (iii)** Many candidates did not show much understanding of why wave frequency can affect the steepness of beach profiles. Many did recognise that destructive waves create a steeper profile but usually they did not explain why the type of wave of wave affected beach steepness.
- (d) (i)** Candidates generally had difficulty explaining systematic sampling and applying it to the fieldwork task. Many candidates confused systematic and random sampling methods. Where they understood the methodology candidates usually referred to the selection of pebbles on a regular pattern, such as every 10th pebble or every metre. What many candidates omitted from their answer was an explanation of how to apply the sampling system, such as creating a line along the beach with a tape measure.
- (ii)** Whilst many candidates identified an appropriate piece of equipment to measure pebble length they did not usually give a clear explanation of how it would be used. Some candidates were

confused between length and diameter and incorrectly suggested wrapping a tape measure or piece of string around the pebble rather than measuring the long axis of the pebble.

- (iii) Although most candidates attempted to draw the two bars some did not use the horizontal scale accurately and so produced bars of the wrong length.
- (iv) Candidates generally reached the correct conclusion that the hypothesis was false. Many used data to support this conclusion referring to the average or median size of pebbles and on which beach the different sized pebbles were located.
- (e) The final section proved to be difficult and challenging for many candidates who were unable to suggest appropriate fieldwork to investigate pollution on the two beaches. Candidates who scored full marks usually did so by referring to observing or identifying specific types of pollution on the beach and then devising a methodology to measure it, such as creating a tally chart and counting the different types they had identified. Some candidates also suggested a bi-polar technique to compare different types of pollution. Other suggestions were made about how to sample beach debris, such as by using a quadrat or creating a transect line. In contrast, weaker candidates wrote about 'picking up' or 'collecting' litter without any suggestion of what they would do with it. Other suggestions which were irrelevant to this type of beach investigation were interviewing residents or tourists and testing the quality of sea water.

Question 2

- (a) Many candidates answered incorrectly because they did not notice that the question asked for features to identify the central point of the CBD, not just the CBD itself. Consequently suggestions such as tall buildings or many pedestrians were not accepted. The most common correct answers referred to the ideas of a major road junction or historic buildings.
- (b) (i) Many candidates did not focus on the decision to do all pedestrian counts at the same time. Instead they wrote about the advantages of working in pairs at 30 testing sites. The most popular advantage suggested was that the decision would lead to greater consistency in measuring because all counts were done at the same time. Some candidates also commented on the benefit of completing the fieldwork task quickly and 20 minutes being long enough to give a fair result.
- (ii) This task produced a whole range of responses from detailed recording sheets to one word notes such as 'tally'. A significant proportion of candidates did not attempt the question. Recording sheets are often provided for candidates when doing fieldwork and this task required them to think about what should be included. The most frequent omission was a reference to location of where the recording sheet would be used.
- (c) (i) Most candidates completed the isoline accurately. The two most common errors were to draw the line inside the points indicating 102 and 120 pedestrians.
- (ii) Again most candidates shaded the correct area. A minority made the error of shading the section over 200 pedestrians and a few candidates only shaded areas immediately surrounding the recording locations.
- (iii) Most candidates concluded correctly that the hypothesis was true. They supported their decision with evidence from the map but only better candidates gave detailed evidence such as 'pedestrian flow is over 200 in the centre but decreases to under 50 near the river'.
- (iv) Most candidates correctly surmised that the number of pedestrians at sites near the market would increase if the market was open.
- (v) Many candidates wrote unacceptable answers because they did not explain whether the reason which they suggested would result in many or few people in the area. When candidates referred to shops or workplaces they needed to explain that such areas would increase the number of pedestrians.
- (d) (i) Most candidates correctly suggested that counting the number of storeys is an appropriate method either because it is easy or quick to count, or that storeys of buildings are usually of similar height and so more storeys indicates a higher building.

- (ii) Most candidates correctly calculated the average number. A few candidates left their answer as 3.2 which was not accepted.
- (iii) Most candidates correctly plotted the height of the building. A small minority misunderstood the question and marked X next to a four storey location.
- (iv) Most candidates realised that the hypothesis was false and used evidence of there being 5 and 6 storey buildings outside the CBD to support their conclusion. Better candidates also compared building heights inside and outside the CBD boundary.
- (v) The question proved a good discriminator. Better candidates made correct references to the cost of land, type of land use and land availability. In contrast weaker candidates did not relate their ideas to an urban area but suggested why high buildings might be found anywhere such as in the countryside or along the coast.
- (e) Again the question was a good discriminator. All distractors were chosen but many candidates correctly identified land value and land use types. A significant number of candidates ticked three choices and so lost credit.
- (f) The final question proved difficult for many candidates. Their answers needed to improve the fieldwork carried out in the exercise not suggest new techniques. Better candidates referred to a combination of repeating the study at different times of the day or a non-work day, counting more than 10 buildings, and collecting data at more survey locations. In contrast weaker candidates gave simplistic learned answers such as 'do fieldwork on more days', 'do fieldwork for a longer time' and 'interview pedestrians' which were irrelevant.

GEOGRAPHY

Paper 0460/42
Alternative to Coursework

Key Messages

A few tips to pass on to candidates:

- When answering Hypotheses questions that ask whether you agree or not, always give your opinion first before any supporting evidence. This will usually be Yes, No or Partially/To some extent. Make your decision after weighing up the evidence then state it at the start of your answer.
- When giving figures in an answer always give the units if they are not stated for you.
- Take care when adding plots to graphs and use the key provided.
- Read questions carefully and identify the command word e.g. *Describe, Explain...* and also the key words.
- When asked to compare, make judgements e.g. *higher, lower*, rather than just list comparative statistics.
- Check you are using the resources that a question refers you to for evidence or data e.g. Table 1, Fig. 4.
- Attempt all completion tasks on graphs, tables or diagrams – not all the answers required are on lines and in writing. Many candidates are missing out on relatively easy marks this way.
- Take into account the marks awarded for each question. Examiners do not expect you to be writing outside of the lines provided so do not write a paragraph when only two lines are given – this approach will waste time.
- If you have to write more than the lines allowed indicate this with a phrase such as (*continued on additional page*). This is very helpful to the Examiner in finding your continuation of any responses.
- As all scripts are now scanned for marking, it would be preferable for candidates to write in black and make sure any shading of graphs stands out clearly.

General comments

Most candidates found this examination enabled them to demonstrate what they knew, understood and could do. Weaker candidates scored on the practical questions, such as drawing graphs, diagram completions and those of higher ability scored well on the more challenging sections requiring explanation, comparison and judgement especially regarding hypotheses.

There is less general advice to be given for areas for improvement with this paper than with others. As there are no choices to make, it is difficult to miss sections out – though candidates do and on this paper there were quite a few sections that indicated high percentages of *No Response*. There were no reports of time issues as the booklet format does not allow or encourage over-writing of sub-sections and this year not many candidates needed to write more than the lines allowed for. Most points for teachers to consider, when preparing candidates for future Paper 42 questions, relate to misunderstanding or ignoring command words, the use of equipment in fieldwork and formulating practical hypotheses that could be realistically tested in the field. Particular questions where candidates do not score well also often relate to them not fully reading the question or taking time to thoroughly understand the resources referred to. Such failings mean that some candidates do not obtain a mark in line with their geographical ability.

It is worth remembering 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 opportunities within the Centre.

Question 1 required candidates to know about, or have some experience of, fieldwork on beaches, uses of measuring instruments for cross-profiles, plotting points on a line graph and scatter graph, plotting a best-fit line, making judgements about the size of pebbles across a beach and explaining the process of long shore

drift and a way of measuring it in the field. This question was not well done with quite a few gaps. As this is an international exam, and so will include Centres and countries with no coastline or possibility of fieldwork on beaches, it must be realised that Paper 4 can and will draw its investigation from any part of the syllabus. Beach processes is not a new topic to be set on this paper.

Question 2 required candidates to have knowledge or experience of carrying out fieldwork into population migration. Standard definitions were tested e.g. immigration, push factors and secondary data, as well as plotting pie and bar charts and a flow map. Appropriate groups to carry out questionnaires tested judgement and sampling techniques were assessed here. Hypotheses involved making judgements about migrants to Saudi Arabia being there for low or highly paid jobs and whether their origin was from LEDCs or MEDCs. This topic was much more accessible and understood by candidates who, in general, gained more marks on **Question 2** than on **Question 1**.

Comments on specific questions

Question 1

- (a) It is important for candidates to realise that the question was about risk near the sea so they are unlikely to be awarded full credit for generic statements that could apply in any scenario e.g. *work in groups, take a mobile phone*, were both on the same mark scheme line for just 1 mark so that credit could be given to those who had thought about issues near the sea. *Do not go into the water, and wear protective clothing* were awarded marks in many answers but suggestions such as *avoid dangerous animals, only go into the water up to your knees and do not go near a cliff edge* (they were on the beach) showed little understanding of the context for the fieldwork.
- (b) (i) The technique is a well-used practical technique involving a tape measure, ruler and clinometer and a full description of how it works was given. Few advantages provided gained marks; most just said it was simple, easy or cheap with little elaboration. Good answers realised that a lot of information would be gained by measuring each metre and that it would be easy to draw a cross-profile with the data obtained. Most candidates gave the standard disadvantage that *human error could occur* but the best answers specified where e.g. *forgetting to add the height of their lowered tape or not holding the tape horizontal*. Some mentioned that the tape might not be long enough and that the metre interval could miss a slope. Overall this question was not well answered,
- (ii) Candidates stated that a single pebble would not be representative or that the chooser could apply bias by picking pebbles they liked; however not many offered viable or realistic improvements. Some suggested a large sample which would be correct but failed to add that it would only be of use if an average size was calculated. Some thought the metre gap was too close and would mean pebbles would be of a similar size so suggested a much larger interval as an improvement. Other candidates suggested using a quadrat but went no further. Again overall this question was not well answered.
- (c) (i) About 9% of candidates did not attempt plotting the two points on the graph yet almost all that did gained full credit. It is an important message to candidates that many are missing out on relatively straightforward marks where graphs require completion. It is difficult to explain why this is a common occurrence on this paper but it may be that candidates are looking for lines for responses and missing out questions where they are not present. Graph completion questions feature in every examination session so candidates must carefully read the question papers so as not to miss these. The 2nd plot was sometimes plotted at 0.9 instead of 1.1; some candidates had failed to spot the 'reverse' order of the left hand scale.
- (ii) The object of this question was to look at the geographical differences between the textbook models of a beach and the one measured by fieldwork. Many candidates thought the question involved comparing the intricacies and draughtsmanship of the diagrams; not the geographical similarities and differences. Consequently many answers compared the labelling on each diagram, made erroneous judgements about distances (there was no scale on the textbook example) and stated that one diagram had a cliff but the other did not. What was required was a judgement of shapes and gradients e.g. both had three levels, both sloped, all sub-sections were concave; for differences the textbook version was steeper, the fieldwork version had flatter specified sections. Marks between 0 and 2 featured here but overall this question was the worst answered on the whole paper.

- (iii) Most candidates provided the correct conclusion that the hypothesis was true or partly true. 4% of candidates did not attempt this question.
 - (iv) This required candidates to plot two points onto the almost complete scatter graph. This was attempted well by almost all candidates who did it; a few plotted the 2nd point at two squares up on the right hand side instead of 4 but, overall, it was done well. However it was disappointing to see that 9% did not attempt the two plots; maybe they thought that the graph looked complete and missed the question at the top of the page just above the graph.
 - (v) Most candidates drew the best-fit line on sensibly and gained full credit providing they had at least 4 plots on each side of the line and that their straight line touched two axes with the higher side on the left. Some candidates joined the plots up showing a lack of understanding of the idea of 'best-fit'.
 - (vi) It was pleasing to see that the majority of candidates supported the hypothesis and could quote at least one set of paired data close to the cliff and away from it that showed the pebble size was larger at the top. Not many gave a second set of data to further confirm the hypothesis. A few did spot anomalies with data; 1 mark was reserved for that.
 - (vii) The processes of swash and backwash, and destructive and constructive waves, on the distribution of pebbles across a beach was not well understood by this cohort of candidates. A few candidates realised that the large pebbles at the back could be related to strong storm waves/tides or even from the weathering of cliff debris; they also realised that subsequent sorting by a weaker backwash would only bring back the smaller pebbles towards the waves where longer contact with water might make them even smaller. Many answers referred to the impact of people walking on the beach and moving pebbles around.
- (d) (i) Candidates who had knowledge of longshore drift did well on this question. They could describe the impact of prevailing winds, the oblique angle of approach of waves with material and the 90 degree return down the beach giving a zig-zag pattern that moved material along the coast. These candidates gained good credit. Some other candidates referred to or drew a zig-zag pattern for credit but did not make the link to longshore drift. Again almost 10% of candidates omitted this question or described processes of swash and backwash with no reference to the movement of material along the beach. The teaching of wave processes in transporting and depositing, and the formation of a spit are required in the syllabus; they cannot be taught effectively without referring to longshore drift.
- (ii) Clearly candidates without knowledge of longshore drift were at a disadvantage in suggesting how it could be investigated in the field. This question was poorly answered by those that attempted it (14% did not attempt it). Those that did well suggested using painted pebbles at a fixed point near the water's edge then coming back after a period to measure how far they have moved. A few suggested a floating object be thrown into the sea and then to observe where it moved to. Some candidates suggested building their own groynes – not credited – but the idea of then measuring the heights of material accumulated on each side for comparison was a valid idea.

Question 2

- (a) (i) The definitions of 'immigration' and 'emigration' should have been quite straightforward; most candidates could compare them by using terms such as *into/out of* however they sometimes referred to a place or area when they needed to specifically refer to entering or leaving another country – a point missed by several candidates. Emigration was often defined as migration within a country.
- (ii) Push/pull factors were quite well understood by candidates. Many gave examples of each to support their definitions but these were not necessary.
- (b) (i) Most candidates understood that secondary data was data that had been produced by somebody else and most could give an example of such e.g. newspaper, census data.
- (ii) There were two straightforward marks here; one for plotting the 79% just before the numbered 80% mark and one for using the correct shading from the key. The vast majority did this well for both marks however many had plotted the 21% clockwise from 12 'o' clock instead of 79% - the first figure in the table and key. These candidates could still have gained the shading mark.

- (c) (i) The answer 31-50 was given by the vast majority of candidates. Most candidates were aware that the groups have to be mutually exclusive to avoid double counting and did this well.
- (ii) The key to this question was to realise that it was about the inappropriateness of using any questionnaire with their families; this was not about the relevance of the questionnaire's questions. Consequently ideas that the sample would be limited, that candidates would know the answers before answering them, that the structure of the family might cause bias in the data were all valid. Reference to the family having jobs if they were migrants was more relevant to (iv) to follow. It was not thought that issues of privacy, embarrassment or giving untruths were valid reasons why they should not use the questionnaire with families.
- (iii) Although 5% of candidates did not attempt this question where naming a sampling technique would have gained credit – those that did seemed to be aware of one of the three sampling techniques this syllabus tests i.e. Systematic, Stratified and Random. The latter one was quite popular but is the one candidates find hardest to describe e.g. they write *to go and choose a person randomly*, but they cannot use the technique's name – the answer must describe how they choose people randomly. Systematic was the most popular method and was described well.
- (iv) This question was quite well done. Candidates stated that the hypotheses were about jobs and migration into Saudi Arabia so it would be pointless and a waste of time to continue with the questionnaire if they found out that they had moved for other reasons or that they had been born there.
- (d) (i) What was required here was a straightforward plot at 7 of a bar to complete the graph and those that did this did it correctly to a great degree. Again a significant percentage missed this question out. Those that did complete the graph did so very well..
- (ii) This was done well. Most candidates did disagree with the hypothesis and gave relevant data to support the new hypothesis that most people who migrated to Saudi Arabia did not get highly paid, skilled jobs. It was important for candidates to link their data to the hypothesis e.g. it was not enough to identify 10 maids which is the highest number of migrants – it had to be stated that this is a low paid, skilled job. The same applied to some of the low numbers e.g. 1 finance manager must be linked to the high paid, skilled job. Without that the data is being lifted off the graph without any context to the hypothesis that is being rejected.
- (e) (i) Although some leeway was given in the mark scheme, the candidates needed to do three things here for each plot. They needed to use the scale to work out the width of the arrow base, it needed to start in the country and it needed to point in a direction towards Saudi Arabia. This was quite well done but 13% of candidates did not attempt the map at all. The most common problem here was error was to misread the scale or to have the arrow pointing in a direction away from Saudi Arabia. One clue was that the USA and Egypt had arrow widths at the same scale needed for the adjacent countries of Canada and Pakistan so candidates could have used them as a guide if they had spotted this.
- (ii) Quite well done. Most candidates thought the technique was easy to read, showed the number of migrants from different countries and also helpfully indicated if the countries of origin were LEDCs or MEDCs. Some candidates read 'appropriate' as 'inappropriate' though.
- (iii) Again, this hypothesis judgement was done quite well. Candidates disagreed and stated that most migrants came from LEDCS not MEDCs. Data was provided e.g. India had 10- migrants and Australia only had 1 but it was important to state whether each was an LEDC or MEDC to make sure that it did support the decision. Listing data on its own does not do this; it must be within the context of the question.
- (f) Many candidates did this final hfkhshfjskdhf question well. Those that did clearly recognised the link between pay/skills and whether the country was an LEDC or MEDC to gain full credit.

GEOGRAPHY

Paper 0460/43
Alternative to Coursework

Key Messages

Every examination is different but there are usually a few generic tips and key messages that need making that should improve candidate performance in future. Most of these have featured in previous reports but the same issues do keep coming up again despite the entry being a fresh batch of candidates with several new Centres. Here are a few key messages that the Examiners feel will benefit future candidates if they are passed on by teachers:

- When answering hypothesis questions that ask whether you agree or not, always give your opinion first before any supporting evidence. This will usually be Yes, No or Partially / To some extent. If you are asked to support your decision with data then statistics must be used from the resources referred to. Data is quantitative; evidence can be qualitative or quantitative. If you make an incorrect conclusion to the hypothesis you will gain no credit for the answer.
- When giving figures in an answers always give the units if they are not stated for you.
- Read questions carefully and identify the command word e.g. *Describe, Explain*.
- When asked to compare, make judgements e.g. *higher, lower*, rather than just list comparative statistics.
- Check you are using the resources that a question refers you to, e.g. *Support your conclusion with evidence from Table 4 and Fig. 7*.
- Attempt all completion tasks on graphs, tables or diagrams – not all the answers required are on lines and in writing. Many candidates are missing out on relatively easy marks this way.
- Take into account the marks awarded for each question. Examiners do not expect you to be writing outside of the lines provided so do not write a paragraph when only two lines are given – this approach will waste time.
- If you have to write more than the lines allowed indicate this with a phrase such as (*continued on additional page*). This is very helpful to the Examiner in finding your continuation of any responses.
- When completing graph work use a dark-coloured pencil or pen as scripts are scanned for marking and light colours do not always show up. Always shade bar graphs and pie charts accurately.
- When you think you have finished, check that you have not missed a question out. Some questions are hard to find if they are on pages with a lot of graphs or maps. Make sure you have answered the questions on every page. This applies especially to questions where you are asked to complete tables, diagrams, graphs or maps.

General Comments

Most candidates found this examination enabled them to demonstrate what they knew, understood and could do. The overall range of marks was similar range to previous years - with weaker candidates scoring on the practical questions, such as drawing and interpreting graphs and tables, and candidates of higher ability scoring well on the more challenging sections requiring explanation and judgement especially regarding hypotheses. Overall **Question 2** proved to be easier than **Question 1**.

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. For example **Question 1 (a)** required candidates to explain how a velocity meter is used to measure river velocity, not how such a velocity meter works. As in some previous papers there was a question, **1(dii)**, which required candidates to suggest improvements to the

investigation methodology. Such questions are frequently included on this paper and are an area which Centres should practise with candidates. However, it is not good practice to develop a series of generic improvements which may apply to all fieldwork as such suggestions tend to be vague and not worth credit.

Centres need to realise 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 **Questions 1(a), 1(b) (i), 1(c) (i), 1(c) (ii), 1(e) and 2(a), 2(d)** focused on specific equipment and techniques, commonly used in fieldwork. Centres are encouraged to carry out basic fieldwork with candidates, especially using simple techniques which can be done on the premises or in the local area.

SECTION 4

Comments on Specific Questions

Question 1

- (a) The first question produced a range in quality of response. The answers were differentiated through the amount of detail given in the description. High scoring answers showed good understanding of both methods of measuring velocity, although weaker candidates only referred to 'floating an object' and 'putting the velocity meter in the water'. Generally candidates showed better understanding of the floating objects methodology. Two common errors which were made by candidates were to write in theoretical terms about how each method works rather than describing the fieldwork methodology, and suggesting advantages and disadvantages of each method.
- (b) (i) Most candidates included at least one valid idea, most commonly human error in methodology or calculation and the float getting stuck in the channel. Few candidates suggested that method 1 only measures surface velocity, although the impact of the wind was often mentioned. An error made by a minority of candidates was to suggest advantages of using a velocity meter.
- (ii) Most candidates correctly plotted both points on the graph and joined them with a continuous line. However, a small percentage of candidates did not attempt the question.
- (iii) Most candidates correctly made a judgement that the hypothesis was correct and usually supported their conclusion with data from sites 1 and 4. Weaker answers failed to include reference to both site numbers and velocity.
- (c) (i) Answers varied in accuracy and detail. Candidates did not always include reference to measuring the length of the pebble but merely stated 'use a ruler'. Some candidates appeared to ignore Figure 3 which showed the ruler and roundness score chart, because they referred to measuring circumference with string or a tape measure and measuring weight or volume.
- (ii) Many candidates answered the question poorly. Often candidates did not recognise the possible weakness of random sampling in this situation. Candidates gained credit for understanding that random sampling may result in the selection of untypical rocks and the sample would be unreliable possibly because of bias in rock selection.
- (iii) Most candidates drew both bars correctly. The main error was using the wrong scale when plotting the roundness score. Again some candidates did not attempt to draw the bars.
- (iv) Many candidates had difficulty in providing supporting evidence. Instead they wrote general statements about the relationship instead of using data from the graphs, or referred to trends rather than individual sites. Some candidates incorrectly referred to statistics from group B in their answer rather than group A.
- (d) (i) Most candidates showed some understanding of the erosion process. The most popular reason given was attrition, but other reasons were poorly explained. Weaker candidates only explained that 'rocks are in the water longer' or 'rocks travel further' without elaborating to show any understanding of the process.

- (ii) Most candidates gave at least one valid suggestion for improving the methodology. Three popular suggestions were to repeat the measurements to check accuracy, to collect more rock samples and to test at more sites along the river. Weaker candidates gave vague answers such as 'use more accurate equipment' and 'take more measurements' without specifying what these would be.
- (e) The extension task differentiated well between candidates. Better candidates showed a clear understanding of how both width and depth could be measured at sites downstream. In contrast weaker candidates did not describe the simple measuring methodologies clearly but gave vague responses such as 'put a ruler in the river to measure the depth' and 'use a tape to measure the width of the river' with no explanation of how the measurements would be made. Some candidates introduced irrelevant ideas such as using chains to measure the wetted perimeter and a clinometer to measure gradient.

Question 2

- (a) Most candidates could name a sampling method but many had difficulty in describing their chosen method. The most successful descriptions were usually of systematic sampling. Candidates who named random sampling found it difficult to describe it in words other than 'select at random'. Weaker candidates did not match their named method with an appropriate description.
- (b) (i) Most candidates completed the pie chart correctly. Plotting the line at 90% had to be accurate with no tolerance being given. Some candidates lost credit for incorrect shading because they did not use the key or reversing the order of the sectors.
 - (ii) The question differentiated between candidates well. Most candidates chose the correct option but both distractors were chosen by significant numbers of candidates.
 - (iii) Many candidates successfully completed the divided bar graph by plotting the dividing lines accurately and shading appropriately.
 - (iv) Most candidates recognised that the hypothesis was false and supported their decision with appropriate data. Weaker candidates seemed to be confused between percentages living in villages and towns.
 - (v) Most candidates identified three correct reasons for living in the village. A small number of candidates made the error of devising their own reasons rather than using the ones in the table.
 - (vi) Candidates usually recognised that the hypothesis was true and supported their decision with data. Better answers sub-divided the percentages living in the town and living in the village to gain maximum marks.
- (c) (i) Whilst most candidates could explain 'secondary data' weaker candidates confused it with primary data or described it as data which was not used very much.
 - (ii) Again most candidates gave an appropriate example of secondary data. However, a significant percentage of candidates omitted the question even though they had explained what it was in their previous answer.
 - (iii) Most candidates correctly suggested a line graph or bar graph to show the population data. Incorrect answers included a histogram and pictogram.
 - (iv) Candidates generally plotted the bars accurately on the appropriate axis. A small minority did not begin the bars at 0 to show the correct percentage change.
 - (v) The question discriminated well and many candidates gave excellent responses. Common problems suggested related to increase in traffic, crime and noise, rise in house prices, pressure on Schools, loss of vegetation and habitats, and specific types of pollution. Weaker answers were typified by vague ideas such as 'pollution', 'land is cleared' or 'the environment is damaged'. Some candidates did not understand that the village being studied is located in the UK (MEDC) and therefore suggestions such as food or water shortages were not relevant.

- (d) This question also proved to be a good discriminator between candidates of different ability. Most candidates made an appropriate suggestion of comparing the land use in 1970 with the present day. However, only better candidates then suggested the need to acquire or produce a map of present-day land use. The better candidates then went on to suggest appropriate fieldwork which could be carried out to plot and classify land use in the modern village. Weaker candidates suggested 'making a note of the changes' which is a less robust version of fieldwork. Candidates also suggested carrying out questionnaires and interviewing residents which would not be appropriate in this task. Such answers seemed pre-prepared rather than giving the actual task the thought which is required to produce a more relevant answer.