GEOGRAPHY

Paper 0460/11

Paper 11

Key Messages:

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

- Use and interpret a variety of resources such as maps, graphs or diagrams in order to extract information, and analyse the data to show patterns or trends.
- Use photographs to generate ideas or to describe features such as a coastal landform or manufactured product.
- Provide full and accurate definitions of key geographical terminology e.g. economically active, domestic use of water.
- Show understanding of key geographical terminology, processes and features by providing full descriptions and/or explanations of geographical themes, events or issues.
- Refer to a range of case studies with place specific detail, statistics or other data, and apply this information to the question being asked e.g. For a named country, state a policy which has been used to influence rates of population growth. Describe the impacts of this policy. This requires information relating to impact only. Any details on the reasons for the policy are not required for this question despite the fact that the candidate would know this information.
- Write in depth and detail in a succinct manner and avoid repetition.

Examiners were impressed by the quality of the work which they saw from many candidates. There were relatively few rubric errors. Case studies were well learned and there was good place specific reference for some questions. Candidates generally coped well with the 5 mark questions and many made genuine attempts to develop their answers. Nevertheless centres would benefit from attention to:

- precision in defining key terms and using them in the correct context. Key word glossaries would help. Key terms need to be used more fully when explaining – e.g. use of words such as convergent, compression and uplift when explaining how the Himalayas were formed.
- knowing how to compare or describe change – either by the use of comparative words or by writing two statements that can be linked.
- developing answers for the 5 mark question and the case studies – sometimes this is done very well but in some cases no development is attempted.
- including place specific reference in the case studies without spending a disproportionate amount of time and space on this at the expense of focusing on the question.
- avoiding the use of vague terms – e.g. – 'higher crime rate' rather than giving the specifics of what the crimes or problems are or 'pollution' rather than giving specific types or examples.
- reading the question carefully – e.g. only writing about one problem if asked to and not several, or focusing on cause rather than effect or vice versa. Advising candidates to underline command words in the question and also the words/terms that give them the content and the context would help.
- identifying the stages in a process and describing or explaining each term sequentially and with precision – e.g. longshore drift.

General Comments:

The combined question and answer booklet is now a familiar and well established format and most candidates made effective use of the space provided. It was unusual to see many answers continued on the additional page and very few candidates went beyond that and used extra paper. Whilst it is possible to continue beyond the space provided candidates should be aware that the space allocated should usually be sufficient if an answer is reasonably concise and relevant. Those candidates who go well beyond the space allocated often do so as they include irrelevant materials. Candidates should be made aware that they:

- write only on the lines provided, not underneath the final line or elsewhere on the page (e.g. in any area of unused space at the bottom of a page).

- continue any answers which they do not have space for on the lined page(s) at the back of the booklet. If they do this they must indicate that they have done so (e.g. by writing 'continued on Page XX') and write the number of the question at the beginning of the extra part of their answer. They should only use loose sheets of paper if this extra space has been used up.

The examination was considered wholly appropriate for the ability and age range of candidates. The examination paper gave a wide spread of marks allowing for positive achievement for all but also allowed for sufficient challenge for the most able. The majority of candidates were able to answer in full and even weaker candidates attempted most sections of their chosen questions.

Many candidates produced geography of a very high standard. There were only a few candidates who did not understand what was required in the questions or respond in an appropriate way and, in general good use was made of the resources provided.

A few candidates attempted all the questions instead of following the rubric. This is not an advantage to them as it does not give them the opportunity to answer in the detail required or devote sufficient thought to each answer.

Whilst many excellent case studies were seen some candidates are learning case studies from previous mark schemes and trying to use them regardless of the question is set on that topic. This is not good practice as it is not conducive to the candidates' understanding of the geography involved. It particularly stands out to Examiners when an answer does not 'fit' with the question being asked. Generally candidates who use local case studies tend to write convincing answers. It enables them to write in detail with place specific information, as opposed to learning about distant case studies that have very little relevance to candidate's everyday lives. It is recognised that this is not always possible and that teacher judgment is required as to which case studies are most suitable, local ones or ones which are well documented in text books and other media.

It is also worth noting that the case study questions were answered by some candidates by the use of bullets or key points as would be used in a revision programme. These simple answers mainly kept the candidate at Level 1. Also a lot of candidates have clearly been trained to put place knowledge in the answer to gain Level 3, but some candidates spend too much time detailing place knowledge (locational and background information for example) at the expense of answering the question fully.

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

1. make the choice of questions with care, ensuring that for each question they choose they have a named case study about which they can write in detail and with confidence.
2. answer the three chosen questions in order, starting with the one with which they are the most confident, and finishing with the one with which they are least confident (in case they run out of time).
3. read the entire question first before answering any part, in order to decide which section requires which information to avoid repetition of answers.
4. highlight the command words and possibly other key words so that answers are always relevant to the question.
5. use the mark allocations in brackets as a guide to the amount of detail or number of responses required, not devoting too much time to those questions worth few marks, but ensuring that those worth more marks are answered in sufficient detail.

6. consider carefully their answers to the case studies and ensure that the focus of each response is correct, rather than including all facts about the chosen topic or area, developing each point fully rather than writing extensive lists of simple, basic points. It is better to fully develop three ideas rather than write extensive lists consisting of numerous simple points. Candidates need to try to consider several issues and develop each one, rather than just focusing on one issue.
7. study the resources such as maps, photographs, graphs, diagrams and extracts carefully, using appropriate facts and statistics derived from resources to back up an answer and interpreting them by making appropriate comments, rather than just copying parts of them.

The following 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

This was a very popular question attempted by the vast majority of candidates.

(a) (i) A large number of candidates answered this successfully, with most candidates providing an acceptable definition.

(ii) This was generally answered well. Most candidates identified the features of the population pyramids to score the two marks available. Some candidates struggle with writing comparative answers (see advice above).

(iii) Most candidates scored two out of three marks. Candidates were able to read the graphs accurately with some excellent use of statistics. In many cases the idea of 'doubling' was required to gain the third mark. In some instances candidates again struggled with writing comparative answers as above, but the majority realised that this was required.

(iv) This was well answered by many as there was a lot to choose from especially if candidates had practiced previous papers.

(b) (i) Most scored two marks easily here with many using statistics to support their answer. However, errors included irrelevant reference to the 65-74 age group and imprecision in reading the 2031 figure. Also the third more elusive point was that the increase is projected to be more rapid after 2021.

(ii) This question differentiated really well. The full range of credit worthy ideas in the mark scheme were seen. A good understanding was shown by more perceptive candidates on the impacts on tax revenues and the working population. Weaker candidates tended to focus on a limited issue e.g. spending on health care and in some cases the points made were exaggerated. A few candidates misunderstood what the question was asking and took it to involve discussing the value of aged people to a community or country.

(c) Most answered this with respect to China, other examples included Singapore, and to a much lesser extent Russia. Many candidates missed the key word in the question 'impacts' and were distracted by writing about the detail of the policy itself or even the reasons for the policy. As a result very few full mark responses were seen and many wrote nothing relevant to the question being asked. There was plenty of place specific detail seen but very few candidates made three developed statements thereby limiting their marks to level 1 or 2.

Question 2

In general candidates seemed less confident with the urban question than the population question, both in terms of the quality of responses and the number of candidates that chose it.

(a) (i) The majority of candidates answered this correctly and gained full credit.

(ii) Most candidates only achieved one mark here. Candidates did not really understand the term 'distribution' and gave too much reference to specifics rather than general comments. Candidates also need to avoid sweeping statements such as 'all on the coast' or 'all in the northern

hemisphere' or vague references like 'above the equator', instead they should try to use more geographical terminology e.g. ' North of' or 'a lot or many are near to or on the coast'. Very few candidates observed that the distribution is uneven and that there a more in LEDC's than MEDC's.

(iii) Part **A** was generally not answered well as many candidates wrote about migration or the reasons for high birth rates which were not relevant. Part **B** responses were better with most marks being gained for rural to urban migration and push and pull factors. Nevertheless this question was not high scoring overall.

(b) (i) The graph was well used and many candidates were able to correctly identify the three country's thereby gaining the full marks.

(b) (ii) Many good responses were seen here with candidates referring to lack of employment, low pay and the inability to afford a house with some development of these ideas. Some candidates did not understand what the question was asking and returned to the push and pull ideas of the previous question or the natural increase ideas which was irrelevant. Other responses were more simplistic but the majority of candidates scored well on this question.

(c) Some good responses were seen here with candidates scoring full marks. Candidates could have selected cities from MEDC's or LEDC's but the better answers tended to be from LEDC's and in particular South or Central American cities which may have been familiar to candidates. The question differentiated well as weaker candidates tended to list simple ideas or just develop one example typically 'self-help schemes'. Very weak responses did not go any further than simply stating 'improve housing' or 'more police' or similar.

Question 3

This was another popular question.

(a) (i) The vast majority of candidates answered correctly but a few did gain credit as they said 'ski resort' but it is only the 'ski lift' that is shown on Fig. 5a.

(ii) The question asked for 'problems for people' but many candidates wrote about 'lava flowing over the village' and not stating what the problem was e.g. 'destruction of houses'. However, most candidates were able to suggest two valid ideas which were typically 'destruction of houses and/or crops and deaths/injuries/breathing difficulties from lava or ash'.

(ii) Most candidates scored two out of a possible three marks as many did not refer to the line of weakness or the gap idea. Not all candidates wrote about constructive boundaries but of those that did they generally scored well.

(iv) Few candidates gained full marks but the majority of candidates secured at least half of the available credit here. Most typical responses gained marks for tourism and fertile soil. Some candidates attempted to develop their answers but there are no marks available for development on this sub question.

(b) (i) Most candidates understood the idea of location but very few gained full credit. A few candidates were able to use latitude and longitude well. Better responses included distance and/or direction in relation to named features or referred to the location of Mt. Everest on or close to the border or Nepal and China. There were many references to plate boundaries; however, there was no evidence on the map to show the exact position of this boundary.

(ii) Generally this was well answered, and most candidates showed understanding of the processes. The question also differentiated well as some candidates were able to develop fully the different stages and link them together rather than just listing one or two brief ideas. However, some candidates wrote about subduction clearly mixing up this process with the collision of two continental plates which results in fold mountain formation.

(c) Some excellent case studies were seen gaining full marks. The most popular choices were 'Haiti' or 'Kobe'. Candidates quite often developed their answers with reference to statistics but if they do this they need to ensure that the statistics they use are accurate. Weaker candidates listed ideas and gained level 1 max. Almost all candidates were able to gain some marks as there were relatively few who did not understand what was required here.

Question 4

This was not a popular choice of question and was probably the least popular choice made by candidates.

(a) (i) This was generally well answered with two out of three features correctly identifying 'spit' and the remaining third stating 'sand and shingle' for no marks.

(ii) Not many candidates scored the full marks here. The most common response was 'sand and shingle' which is acceptable for this sub question. Very few scored the second mark but of those that did the most common response was 'below 10 m'. Very little reference was made towards length, width or orientation.

(iii) Mixed responses were seen here with some very good longshore drift responses seen. However, many responses referred to erosional processes or were too vague for credit. Some candidates included a diagram but this rarely gained any extra credit as it tended to just repeat what was in the text.

(iv) Again, mixed responses were seen here. Some candidates answered this very well and there were some very clear explanations gaining good credit but these tended to be in the minority. Most common errors seen were candidates writing about waves forming the sand dunes rather than the wind.

(b) (i) Very few candidates gained full credit here. Credit was most commonly awarded for soft or unconsolidated rock. Very few gained anything else from the mark scheme ideas. Many candidates went into a description of the processes or the impacts of human action on the cliffs.

(ii) This sub question differentiated well as some very good answers with developed ideas were seen. Also many simple responses which were listed were also seen with many candidates focusing on just two ideas at the most rather than considering a variety of problems.

(c) The most common case studies seen were the Ganges Delta, Nile, Mississippi were common responses and some good quality answers were seen, including place specific detail. Most could give a balance of positive and negative ideas. The most common responses included reference to fertile soils for farming and the possibility of flooding. Some candidates provided simple lists gaining level 1 max. Whilst other candidates developed two ideas they needed to develop other issues to gain full marks.

Question 5

This was a popular question.

(a) (i) This was generally well answered as most candidates could define 'domestic use of water' however, some candidates just listed the uses from the key.

(ii) The majority of candidates gained full marks here for identifying that Norway uses more than Sudan and the second mark for correct use of statistics.

(iii) Again this was generally well answered with most responses having the required comparative element either in words or statistics. Some candidates lost marks by focusing on differences in 'other uses' which was not appropriate.

(iv) This was generally not well answered. The majority of answers referred to availability of water which gained a mark but few candidates went beyond this to gain further marks from the mark scheme ideas. A few candidates made valid references to toilets and shower/baths which gained credit.

(b) (i) As in **Question 3(b)(i)** the idea of location was reasonably well understood by most candidates, but not all. Some good references to distance and direction from named settlements were seen but other responses were too vague i.e. near large towns/roads which did not gain any credit.

(ii) This question differentiated well with some excellent high scoring answers with good balance of problems and benefits. However, there were some weak responses showing simplistic ideas

and/or misunderstandings. References to flooding were not always well made – it could be argued that raising the dam would cause flooding or reduce it depending upon where the candidates were referring to which was not always made clear by the candidate.

(c) This question differentiated well with a variety of examples seen. Some excellent developed responses with place specific reference were seen but also responses with very simple lists for level 1 max. The impacts on the natural environment tended to be developed better than causes which were rarely more than simple statements. Most candidates did refer to both causes and effects but the effects formed the bulk of many candidates' answers which sometimes strayed into the effects on people which were irrelevant. Good development was seen on the impacts on food chains or ecosystems and on eutrophication with impressive correct use of terminology too.

Question 6

This was a fairly popular question.

(a) (i) Most candidates answered correctly.

(ii) There were many responses which gained half of the available credit with reference to exhaust fumes or air pollution. Not many candidates gained full credit.

(iii) Some very impressive and perceptive responses were seen here by candidates who had clearly thought through their ideas. Many references to recycling of packaging and water were popular, also to bulk transport and the use of renewable energy or specific energy conservation ideas in production or transport. However, not all responses were realistic (e.g. put the factory near the market) and some were too vague (e.g. use less energy).

(iv) There were some well explained answers which gained good credit but these were far outnumbered by some confused references to holes in the ozone layer which did not score any marks.

(b) (i) This question was generally well answered with few errors in any sections although some invalid references were made to silicon mining which showed a lack of understanding by some candidates.

(ii) This question differentiated well. Most responses focused on specific methods of generating renewable energy. Lack of finance and technology was mentioned by many however, some candidates failed to refer to the expense of development/setting up renewable energy, by simply stating that it is 'expensive' is too simplistic and arguably not true.

(c) This was not a high scoring question compared to other 'C' questions on the paper. A mixture of examples were seen on the paper which were not relevant e.g. high technology industries. Most candidates were able to make some generic statements which gained some marks even if they had used an incorrect example. The majority of candidates used a secondary industry example such as car manufacturing or steel rather than a primary or tertiary which was pleasing. Many simple level 1 max. statements were seen which mostly referred to work force availability and transport.

GEOGRAPHY

Paper 0460/12

Paper 12

Key Messages:

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

- Use and interpret a variety of resources such as maps, graphs or diagrams in order to extract information, and analyse the data to show patterns or trends.
- Use photographs to generate ideas or to describe features such as part of an urban area, a tropical desert or a coastal landform.
- Provide full and accurate definitions of key geographical terminology e.g. birth rate, employment structure.
- Show understanding of key geographical terminology, processes and features by providing full descriptions and/or explanations of geographical themes, events or issues.
- Refer to a range of case studies with place specific detail, statistics or other data, and apply this information to the question being asked e.g. describe the impact of human activity on a tropical rainforest ecosystem. This requires information relating to impact only. Any details on the reasons for deforestation or on impacts globally or on people are not required for this question despite the fact that the candidate would know this information.
- Write in depth and detail in a succinct manner and avoid repetition.

Examiners were impressed by the quality of the work which they saw from many candidates. There were relatively few rubric errors. Case studies were well learned and there was good place specific reference for some questions. Candidates generally coped well with the 5 mark questions and many made genuine attempts to develop their answers. Nevertheless centres would benefit from attention to:

- precision in defining key terms and using them in the correct context – e.g. the use of per 1000 of the population for birth rate. Key word glossaries would help. Key terms need to be used more fully when explaining – e.g. use of words such as infiltration and interception when explaining the link between deforestation and soil erosion.
- knowing how to compare or describe change – either by the use of comparative words or by writing two statements that can be linked.
- developing answers for the 5 mark question and the case studies – sometimes this is done very well but in some cases no development is attempted.
- including place specific reference in the case studies without spending a disproportionate amount of time and space on this at the expense of focusing on the question.
- avoiding the use of vague terms – e.g. – ‘higher crime rate’ rather than giving the specifics of what the crimes or problems are or ‘pollution’ rather than giving specific types or examples.
- reading the question carefully – e.g. only writing about one problem if asked to and not several, or focusing on cause rather than effect or vice versa. Advising candidates to underline command words in the question and also the words/terms that give them the content and the context would help.

- identifying the stages in a process and describing or explain each term sequentially and with precision – e.g. relief rainfall.

General Comments:

The combined question and answer booklet is now a familiar and well established format and most candidates made effective use of the space provided. It was unusual to see many answers continued on the additional page and very few candidates went beyond that and had to use extra paper. Whilst it is possible to continue beyond the space provided candidates should be aware that the space allocated should usually be sufficient if an answer is reasonably concise and relevant. Those candidates who go well beyond the space allocated often do so as they include irrelevant materials. Candidates should be made aware that they:

- write only on the lines provided, not underneath the final line or elsewhere on the page (e.g. in any area of unused space at the bottom of a page).
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The examination was considered wholly appropriate for the ability and age range of candidates. The examination paper gave a wide spread of marks allowing for positive achievement for all but also allowed for sufficient challenge for the most able. The majority of candidates were able to answer in full and even weaker candidates attempted most sections of their chosen questions.

Many candidates produced geography of a very high standard. There were only a few candidates who did not understand what was required in the questions or respond in an appropriate way and, in general good use was made of the resources provided.

A few candidates attempted all the questions instead of following the rubric. This is not an advantage to them as it does not give them the opportunity to answer in the detail required or devote sufficient thought to each answer.

Whilst many excellent case studies were seen some candidates are learning case studies from previous mark schemes and trying to use them whatever question is set on that topic. This is not good practice as it is not conducive to the candidates' understanding of the geography involved. It particularly stands out to Examiners when an answer does not 'fit' with the question being asked. Generally candidates who use local case studies tend to write convincing answers. It enables them to write in detail with place specific information, as opposed to learning about distant case studies that have very little relevance to candidate's everyday lives. It is recognised that this is not always possible and that teacher judgment is required as to which case studies are most suitable, local ones or ones which are well documented in text books and other media.

It is also worth noting that the case study questions were answered by some candidates by the use of bullets or key points as would be used in a revision programme. These simple answers mainly kept the candidate at Level 1. Also a lot of candidates have clearly been trained to put place knowledge in the answer to gain Level 3, but some candidates spend much time detailed place knowledge (locational and background information for example) at the expense of answering the question fully.

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

1. make the choice of questions with care, ensuring that for each question they choose they have a named case study about which they can write in detail and with confidence.

2. answer the three chosen questions in order, starting with the one with which they are the most confident, and finishing with the one with which they are least confident (in case they run out of time).

3. read the entire question first before answering any part, in order to decide which section requires which information to avoid repetition of answers.

4. highlight the command words and possibly other key words so that answers are always relevant to the question.

5. use the mark allocations in brackets as a guide to the amount of detail or number of responses required, not devoting too much time to those questions worth few marks, but ensuring that those worth more marks are answered in sufficient detail.

6. consider carefully their answers to the case studies and ensure that the focus of each response is correct, rather than including all facts about the chosen topic or area, developing each point fully rather than writing extensive lists of simple, basic points. It is better to fully develop three ideas rather than write extensive lists consisting of numerous simple points. Candidates need to try to consider several issues and develop each one, rather than just focusing on one issue.

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

The following 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

This was a very popular question attempted by the vast majority of candidates.

(a) (i) A large number of candidates answered this successfully. Where some did not earn credit it was because they did not include the term 'per 1000 of the population'.

(ii) This was generally answered well. If answers were wrong it was usually Angola and the Philippines that were reversed.

(iii) This was well answered by many candidates. Most answers referred to aspects of contraception, work and tradition. If candidates refer to 'education', 'contraception' or 'tradition' it is wise to develop these ideas.

(iv) Again this was well answered with a wide variety of ideas, most candidates gaining 3 or 4 marks.

(b) (i) Whilst some candidates answered this very well many others lost marks because they did not compare. Also, there were answers referring to birth rate, death rate and life expectancy rather than focusing upon the pyramid.

(ii) This question differentiated really well. Many candidates included several ideas and developed each one well, though others looked at few issues and/or answered briefly.

(c) Many candidates included lots of information as background to the migration. However, this meant that they had spent a lot of time (and space) on this before writing something that answered the question. Whilst it is good to see place specific information it needs to be in balance with answering the question. Weak candidates wrote lists of simple push and pull factors here and therefore gained 3 marks maximum within Level 1 – for example they moved for 'jobs and better pay and better education'. However, there were some very good examples of full mark answers where candidates had gone on to develop several ideas and given very full and accurate place specific references.

Question 2

In general candidates seemed less confident with the urban question than the population question, both in terms of the quality of responses and the amount of candidates that chose it.

(a) (i) The majority of candidates answered this correctly

(ii) Most candidates only achieved one mark here – usually for mentioning parks or sports grounds. Some candidates misunderstood the question and gave answers about how open space was used once developed – e.g. for shopping malls or industrial estates.

(iii) Generally this was not answered well as many candidates did not compare and others focused on the area rather than the housing or made value judgments about quality and cost of the housing in such areas which could not be substantiated.

(iv) This question was answered well with most candidates writing something of relevance and many gaining either 3 marks or full credit.

(b) (i) The photograph was well used and many candidates were able to identify acceptable features of the CBD of Hong Kong shown in it.

(b) (ii) Whilst there were many good answers, with appropriate precision and development of ideas there were other candidates who could have developed answers more fully, especially those who referred to 'pollution', 'traffic', 'crowds' and 'crime'.

(c) Highly achieving candidates had clearly learned their case studies well and gave some very well developed place specific details, with a great variety of examples being seen from MEDCs and LEDCs. There were some well documented text book examples and many which were obviously local to the candidates. Others did not develop ideas or wrote briefly about solutions to more than one problem rather than focusing properly on one.

Question 3

This was not a popular choice of question.

(a) (i) The definition was correctly identified by most candidates.

(ii) Not many candidates got both words correct – the common mistake was to write 'evaporation' instead of 'condensation'.

(iii) Few candidates gained all three marks as they were not proficient in explaining the stages in the formation of relief rainfall and thus the significance of the rain shadow.

(iv) Very few candidates gained all four marks and a significant number did not present answers that gained any credit. There was much confusion for the reasons for desert climate in relation to descending air.

(b) (i) Generally this was well answered with features from the photograph being described well.

(ii) This was really well answered by many candidates who had clearly learned the vegetation adaptations and were able to develop this to explain how these adaptations helped them to survive. It was not uncommon for a candidate to gain full credit here – even if they had scored less well on other parts of this question.

(c) Whilst there were some notable high quality exceptions, on the whole this was not a well answered question. Lots of answers poorly focused answers dealt with the causes of tropical rainforest destruction with lots of information about logging, cattle ranching etc. Some did not concentrate on the ecosystem and wrote about impacts on people or global impacts.

Question 4

This was not a popular choice of question.

(a) (i) This was generally answered well. The most common mistake was to give the answer natural arch.

(ii) This was not well answered as many obvious features were overlooked at the expense of vague ideas.

(iii) This was generally well answered showing that most candidates had a good knowledge of processes. The most common mistake was the confusion of corrosion with corrasion.

(iv) Some candidates answered this very well and there were some very clear explanations. The common error was to explain how stacks, stumps and arches are formed on a headland which is not relevant. 'Differential erosion' was rarely used as a term although the concept was often well understood.

(b) (i) The distribution was a fairly simple one to describe as there were very clear patterns shown on Fig. 5 and there were a number of good answers. However describing a distribution from a map is not a skill which many candidates find easy and some do not seem familiar with the command.

(ii) Many candidates answered this well. They had clearly been taught the conditions needed for the growth of coral and wrote about this in a convincing way. Many developed their answers with temperature figures or specific depths and most scored high marks.

(c) Whilst some inappropriate examples were chosen here there were also some very good ones, typically referring to areas in Southern Asia, such as Bangladesh, or the Southern United States. Many of those candidates who had good knowledge of the case study earned high marks by developing ideas or using appropriate statistics, however, some candidates clearly did not have this knowledge and did not develop ideas, so gave simplistic ideas which could only be credited at Level 1, such as 'lives lost, injuries' etc.

Question 5

This was a popular question.

(a) (i) This was generally well answered though some candidates lost the mark by not including the idea of distribution or percentage.

(ii) Clearly some candidates were familiar with triangular graphs and they scored both marks, others seemed to simply guess or did not attempt the task.

(iii) Many candidates seemed to have an understanding of the reasons behind the employment structure in Ghana but did not present this in the form of a comparison with Spain as the question was asking for.

(b) (i) This was well answered – few candidates had problems recognizing primary, secondary and tertiary industries.

(ii) A Most candidates at least recognized that jobs would be created by their chosen industry and some went well beyond that by writing about the multiplier effect, infrastructural development and the enhancement of service provision in the area.

(ii) B This was well answered with some very good development of ideas seen. There was some clear knowledge and understanding of a variety of environmental impacts, though some candidates included irrelevant references to people or vaguely wrote about 'pollution'.

(c) Whilst not all candidates understood what was required here, there were some very good responses seen with good development of reasons for changes in employment structure. However, these were not always clearly linked to the specific change and sometimes as a result the answers lacked structure and clarity.

Question 6

This was a popular question

(a) (i) Most candidates correctly identified one of the two cities.

(ii) This was well answered with most candidates writing about air pollution caused by cars and factories.

(iii) Most candidates identified a problem such as breathing difficulties or another health issue, and some described other problems caused by air pollution in urban areas, such as the impact of acid rain on buildings and the impact of smog on visibility. Candidates who lost marks tended to do so as they either focused on one idea only, typically a health issue, or they wrote simple points (e.g. acid rain) which did not specifically describe the problems that caused for the people.

(b) (i) This was very well answered and most candidates correctly identified and described changes to gain full marks.

(ii) Some outstanding answers were seen which showed a very clear understanding and used appropriate terminology, however these were in the minority as many candidates do not seem to know the links between deforestation and flooding, and there was little precision in the use of key terms like interception, infiltration and overland flow.

(b) (iii) This was well answered by many candidates who developed their ideas well and wrote with confidence about a variety of appropriate environmental impacts.

(c) Significant numbers of candidates focused on the effects of the pollution of their chosen sea, lake or river, and developed this rather than the causes, which they tended to write about much more superficially. Nevertheless most were able to score some marks and there were a few very well developed answers using well documented textbook examples or more recent ones which have been in the news. Some candidates used local examples, which was encouraging to see, and it is always good to see up to date examples being used rather than those from the textbooks, which inevitably, though acceptable, are somewhat dated.

GEOGRAPHY

Paper 0460/13

Paper 13

Key Messages:

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

- Use and interpret a variety of resources such as maps, graphs or diagrams in order to extract information, and analyse the data to show patterns or trends.
- Use photographs to generate ideas or to describe features such as a mountain environment, a factory or a power station.
- Provide full and accurate definitions of key geographical terminology e.g. low population density or tectonic activity.
- Show understanding of key geographical terminology, processes and features by providing full descriptions and/or explanations of geographical themes, events or issues.
- Refer to a range of case studies with place specific detail, statistics or other data, and apply this information to the question being asked e.g. explain the causes of an earthquake which occurred in a named area which you have studied. This requires information relating to causes only. Any details on the impacts of the earthquake are not required for this question despite the fact that the candidate would know this information.
- Write in depth and detail in a succinct manner and avoid repetition.

Examiners were impressed by the quality of the work which they saw from many candidates. There were relatively few rubric errors. Case studies were well learned and there was good place specific reference for some questions. Candidates generally coped well with the 5 mark questions and many made genuine attempts to develop their answers. Nevertheless centres would benefit from attention to:

- precision in defining key terms and using them in the correct context. Key word glossaries would help. Key terms need to be used more fully when explaining – e.g. use of words such as convergent, compression and uplift when explaining how the Himalayas were formed.
- knowing how to compare or describe change – either by the use of comparative words or by writing two statements that can be linked.
- developing answers for the 5 mark question and the case studies – sometimes this is done very well but in some cases no development is attempted.
- including place specific reference in the case studies without spending a disproportionate amount of time and space on this at the expense of focusing on the question.
- avoiding the use of vague terms – e.g. – 'higher crime rate' rather than giving the specifics of what the crimes or problems are or 'pollution' rather than giving specific types or examples.
- reading the question carefully – e.g. only writing about one problem if asked to and not several, or focusing on cause rather than effect or vice versa. Advising candidates to underline command words in the question and also the words/terms that give them the content and the context would help.
- identifying the stages in a process and describing or explaining each term sequentially and with precision – e.g. longshore drift.

General Comments:

The combined question and answer booklet is now a familiar and well established format and most candidates made effective use of the space provided. It was unusual to see many answers continued on the additional page and very few candidates went beyond that and used extra paper. Whilst it is possible to continue beyond the space provided candidates should be aware that the space allocated should usually be sufficient if an answer is reasonably concise and relevant. Those candidates who go well beyond the space allocated often do so as they include irrelevant materials. Candidates should be made aware that they:

- write only on the lines provided, not underneath the final line or elsewhere on the page (e.g. in any area of unused space at the bottom of a page).

- continue any answers which they do not have space for on the lined page(s) at the back of the booklet. If they do this they must indicate that they have done so (e.g. by writing 'continued on Page XX') and write the number of the question at the beginning of the extra part of their answer. They should only use loose sheets of paper if this extra space has been used up.

The examination was considered wholly appropriate for the ability and age range of candidates. The examination paper gave a wide spread of marks allowing for positive achievement for all but also allowed for sufficient challenge for the most able. The majority of candidates were able to answer in full and even weaker candidates attempted most sections of their chosen questions.

Many candidates produced geography of a very high standard. There were only a few candidates who did not understand what was required in the questions or respond in an appropriate way and, in general good use was made of the resources provided.

A few candidates attempted all the questions instead of following the rubric. This is not an advantage to them as it does not give them the opportunity to answer in the detail required or devote sufficient thought to each answer.

Whilst many excellent case studies were seen some candidates are learning case studies from previous mark schemes and trying to use them whatever question is set on that topic. This is not good practice as it is not conducive to the candidates' understanding of the geography involved. It particularly stands out to Examiners when an answer does not 'fit' with the question being asked. Generally candidates who use local case studies tend to write convincing answers. It enables them to write in detail with place specific information, as opposed to learning about distant case studies that have very little relevance to candidate's everyday lives. It is recognised that this is not always possible and that teacher judgment is required as to which case studies are most suitable, local ones or ones which are well documented in text books and other media.

It is also worth noting that the case study questions were answered by some candidates by the use of bullets or key points as would be used in a revision programme. These simple answers mainly kept the candidate at Level 1. Also a lot of candidates have clearly been trained to put place knowledge in the answer to gain Level 3, but some candidates spend too much time detailing place knowledge (locational and background information for example) at the expense of answering the question fully.

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

1. make the choice of questions with care, ensuring that for each question they choose they have a named case study about which they can write in detail and with confidence.
2. answer the three chosen questions in order, starting with the one with which they are the most confident, and finishing with the one with which they are least confident (in case they run out of time).
3. read the entire question first before answering any part, in order to decide which section requires which information to avoid repetition of answers.
4. highlight the command words and possibly other key words so that answers are always relevant to the question.
5. use the mark allocations in brackets as a guide to the amount of detail or number of responses required, not devoting too much time to those questions worth few marks, but ensuring that those worth more marks are answered in sufficient detail.

6. consider carefully their answers to the case studies and ensure that the focus of each response is correct, rather than including all facts about the chosen topic or area, developing each point fully rather than writing extensive lists of simple, basic points. It is better to fully develop three ideas rather than write extensive lists consisting of numerous simple points. Candidates need to try to consider several issues and develop each one, rather than just focusing on one issue.
7. study the resources such as maps, photographs, graphs, diagrams and extracts carefully, using appropriate facts and statistics derived from resources to back up an answer and interpreting them by making appropriate comments, rather than just copying parts of them.

The following 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:

A popular choice made by the majority of candidates.

Question 1

(a) (i) The majority of candidates could define 'low population density' but the main reason for some candidates not gaining credit was the failure to refer in some way to a 'given area' as 'when not many people live in a place' or similar' does not quite get the idea across. Some good use was made of the word 'sparsely' in some candidates' definitions.

(ii) Generally well answered by most although significant numbers of candidates lost credit through imprecise answers (e.g. Africa) or basic lack of knowledge or understanding – e.g. of where the northern hemisphere was or where arid areas are located. Candidates should be careful when naming a country (or continent) in these types of questions, and check that the whole of the country fits into the required category.

(iii) This question was generally not well answered with few candidates scoring full credit. Many candidates made reference to the MEDC status rather than those factors that had made Europe more densely populated. Other candidates made reference to factors more applicable to LEDC's for reasons for high birth rates such as lack of contraception. There were however a significant minority who explained the temperate climate and access very clearly and made a valid reference to jobs and/or resources. Too many candidates took the opportunity to wrongly write about migration, referring to pull factors which are not all valid to explain a high population density (e.g. education and health care).

(iv) There were lots of ideas to choose from here and most candidates scored well. However, some answers did not develop sufficiently ideas such as pollution, overcrowding or crime and did not score the mark.

(b) (i) Again, generally well answered as candidates seemed to interpret the photograph well, with many good references to relief, access and climate for example. The most common errors referred to flooding or no water available.

(ii) This question differentiated well with some very well explained answers gaining credit, with several ideas, some of them developed. Weaker responses tended to focus on a limited issue, which was not always a valid one, as there were many references to cheap land/housing and not being able to move, which do not really apply to such a rural area with a low density of population.

(c) Most candidates did seem to understand what was required in answering this question and to some extent described the distribution in their chosen country, supplementing it with a map. It was rare for a candidate not to include a map, and most of them were recognisable and contained sufficient information to show the distribution of population in some way. Where many candidates did misinterpret what was required was the inclusion of explanation, which was not required at all and therefore much of the answer from many candidates was irrelevant. Nevertheless Level 2 at least was achieved by many as they made points about the distribution and showed this on the map (or named significant places). The higher scoring answers (top end of level 3) had some really excellent descriptions using China as the example with some well-drawn and annotated maps.

Question 2

Another popular choice made by candidates.

(i) Many candidates missed this question out but those who answered it tended to get it right.

(ii) Generally well answered and both were usually correct.

(iii) Very mixed responses were seen here. Some candidates very clearly expressed their answers with the statistics to support them and made reference to the anomaly. Others had no idea what they were doing and did little other than quote statistics with some even saying there was no relationship.

(iv) Another question that produced very mixed responses. There were many high quality answers focusing on key issues such as employment, discrimination, culture and language whilst others overlooked the reference to people not born in the USA and wrote generally about problems of urban areas, with many weak and undeveloped ideas.

(b) (i) This question was generally well answered with many valid ideas, however there was a tendency to focus on health issues only rather than looking at 'different' problems as the question asks. Some candidates described the causes of air pollution rather than the problems it caused.

(ii) Again, generally well answered and many scored well by writing about transport, industry and fossil fuels, developing some of these ideas well. Whilst weaker responses generally did not develop ideas or mention enough different ideas to score high marks, but most scored marks for simple valid ideas such as traffic or factories.

(c) This was not generally well answered. However, some good responses were seen at level 3 with several relevant developed ideas and place specific information, with reference to their chosen urban zone. Those answers were in the minority though as many candidates were confused by the terminology. Some interpreted inner city as CBD and others interpreted rural – urban fringe as the rural area. Outer suburbs responses were mostly better but few candidates chose it. Many candidates made simple lists of features, without any real attempt to develop their description. Better answers related to squatter settlements in the inner city or fringe but few good ones were seen relating to MEDC cities such as London. Few candidates took advantage of using information from their own cities and of those that did responses were generally weak.

Question 3

This was not a popular choice made by candidates.

(a) (i) This was correctly answered by most candidates.

(ii) The majority of candidates gained full credit by suggesting two valid examples. A few candidates named the instruments themselves.

(iii) Mixed responses were seen here with some perfect answers which very easily scored the full marks but many candidates had no idea of how the relative humidity value was obtained.

(iv) This question was generally well answered with many excellent responses. Most candidates showed an excellent understanding of the Stevenson screen.

(b) (i) Again, well answered. Most candidates could observe that it was hot/wet/constant temperature or use some relevant statistics to illustrate the ideas. There were very few attempts to give a month by month description which was encouraging. The vast majority of candidates gained full marks.

(ii) Generally this was well answered, and most candidates showed understanding of the processes resulting in a hot, wet climate. The question differentiated well as some candidates were able to develop fully the different ideas and link them together rather than just listing one or two brief ideas. Some candidates wrote about Tropical Rainforest vegetation but this was only relevant in relation to large amounts of transpiration.

(c) Some excellent case studies were seen scoring high level 3 marks. Candidates either generally used Amazonia or a South East Asian example like Kalimantan. The focus was on why deforestation is taking place, not on the impacts, and too many candidates who had not read the question properly wasted time by writing in detail about impacts, locally and/or globally and the natural environment and/or people which were all irrelevant.

Question 4

This was a popular question.

(a) (i) Mostly well answered and correct although some poor use of 'plate boundary' with reference to the boundary moving.

(ii) Most candidates answered correctly although a few named one plate only.

(iii) Most candidates gained credit for knowing that zones were mostly on plate boundaries. Many candidates then went on to name plates rather than locations. Some higher scoring answers went beyond this and referred to lines/bands and/or named relevant areas like the Pacific Ring of Fire or Mid-Atlantic Ridge. Many referred to edges of specific named plates which did not gain marks or referred to large and imprecise areas e.g. Africa/Asia/Europe without the required precision.

(iv) Some well-informed responses were seen with many candidates able to explain why the risk of volcanoes is high in some parts of the world. Marks were scored for reference to processes at either the destructive or constructive margin. Inexplicably large numbers chose instead to write about why people live in many of the areas which are at risk and scored zero.

(b) (i) Virtually all candidates scored full marks here as they were able to identify three impacts from the diagram.

(ii) This question differentiated well a few very good answers with several ideas were seen and were sometimes developed. Weaker responses listed simple ideas with many focusing on just two reasons at the most rather than looking at a variety of reasons.

(c) Some mixed responses were seen here and the question differentiated well. Kobe and Haiti were very prominent amongst answers as was the recent Japanese tsunami, which proved to be more difficult to locate. The focus of the question was on 'causes' which many candidates did respond to but there was a lot of irrelevant material written about 'effects'. This was to the detriment of candidates, many of whom developed ideas about effects and wrote one simple statement about the cause, or even wrote nothing about the cause. High quality answers which gained level three were excellent, as many instantly added place specific by reference to plate names, date or intensity.

Question 5

A popular choice made by candidates.

(a) (i) The vast majority of candidates got this right, although a few put 'sugar' which did not gain the mark.

(ii) Well answered by almost all, choosing two out of the three. A very small number chose inputs rather than outputs.

(iii) Generally well answered with most candidates answering correctly. Knowledge of primary, secondary and tertiary industry appears to be sound.

(iv) The majority of answers at least showed some understanding of the reasons for a raw material location and some expressed several valid ideas scoring full marks. The reduction of transport costs was the main correct point mentioned and some very good answers referred to the raw materials being heavier than the finished products and/or weight lost in processing. Weaker responses showed misunderstanding by attributing the locational choice to factors such as the need to avoid various types of pollution close to housing rather than more significant ones which have a real impact on location. Not many responses recognised that the market for sugar is dispersed.

(b) (i) Whilst some candidates scored well on this performance was varied overall. Candidates referred to other features (rather than the buildings) such as pollution and open space. The fact that the buildings were large was mentioned by many for credit, however many made simple observations which are not accurate (e.g. they are old, low etc).

(ii) In contrast this was well answered with good references to atmospheric pollution, water pollution and the impacts of the loss of natural vegetation typically being the points gaining credit. Some candidates strayed into global issues and impacts on people despite the clear instruction in the question for the 'local, natural environment'. Some candidates also focused on just one problem rather than a range of problems.

(c) Most candidates chose an appropriate high technology industry, with many South East Asian examples as well as the Silicon Valley and M4 corridor. There were some very good answers, some with place specific detail gaining full marks, although many candidates found the hurdle was in developing their ideas sufficiently for level 2 marks. Also many generic ideas were credited for level 1 max. as candidates selected a manufacturing industry rather than a high technology industry and many candidates feel that nice scenery is a key location factor.

Question 6

A fairly popular choice made by candidates but less so than **Question 5**.

(a) (i) The vast majority of candidates identified one of the two possibilities to gain credit.

(ii) Generally accurate with the vast majority ranking the continents in order. However, a few got them mixed up, as they were presumably looking at the wrong bars.

(iii) Some impressive responses were seen here with some of the ideas from the more perceptive candidates who were obviously prepared to think this through. References to cost and wanting to avoid being dependent were popular, also to the need to develop their own supplies of new renewable energy for the future.

(iv) Many good answers were seen which credit with most candidates being able to add some description to each type of renewable energy to which they referred rather than simply listing which was done by a very small minority of candidates which limited them to just one mark. Fortunately there were not many references to nuclear power which was considered not to be an example of renewable energy.

(b) (i) Generally well answered – most candidates wrote correctly about greenhouse gases (and/or gave examples) along with the problems of acid rain and enhanced global warming. Local impacts were not credited here.

(ii) This question differentiated well – some candidates who were very well prepared had learned about the factors influencing the location of coal fired power stations and explained a range of them competently and in detail such as the need for a large flat site close to the raw material. However, weaker responses gave vague answers which could have related to any economic activity (e.g. cheap land) or factors which were wrong (e.g. safety-away from people). Whilst some candidates scored one or two marks for the general correct ideas such answers were not high scoring.

(c) Another question that differentiated well. Some excellent answers were seen with a good local people/natural environment balance. Many named areas/countries were acceptable although little place specific information was seen. Weaker answers within level 1 listed simple ideas, although some were able to develop one of them (typically either a health issue or a habitat/extinction issue) which enabled them to enter Level 2.

GEOGRAPHY

Paper 0460/21

Paper 21

Key Messages

- In **Question 1**, candidates need to give one answer only in sections such as parts **(a)(i) – (v)**. Giving more than one answer, where it is clear that only one is required, invalidates the response.
- Candidates should make sure that they understand clearly the different meanings of the command words such as *describe*, *suggest* and *explain* in questions and what responses these require.
- Care should be taken with map and graph work to ensure that drawn responses are clear and accurate.

General Comments

Good answers to questions were focused on the questions asked and often were concise, making excellent use of the resources provided in the paper. There were a few really good scripts which scored 50 marks and over and only a small number of weak ones. Candidates found **Questions 4**, **5** and **6** relatively straightforward but **Questions 2** and **3** were more difficult. Almost always, candidates answered the questions within the spaces provided and avoided the use of additional sheets. Most candidates were able to complete the paper in the allotted time.

Question 1

(a) Many candidates scored full marks in this section and made careful reference to the map key. In part **(i)**, the answer to the type of road at A was *Main A* although a considerable number of candidates wrote just *Main*. 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 **(iv)** where the correct answer was *dam*, those who wrote *Watercourse, Waterfall, Rapids, Dam* did not receive credit.

(b) This was a high scoring section with many candidates scoring at least 3 marks out of 5. The most common error was for linear settlement which did not apply to either Petit Verger or Petite Rivière.

(c) There were few accurate responses to this question and a number of candidates omitted it completely. Attention should be given to careful measurement and plotting, using arrows similar to those given as an example in the question.

(d) This section was well answered. The distance (answers within a range of 2100-2200 m were accepted), direction (SE) and height difference (80 m) were accurately calculated by most candidates.

(e) Whilst many candidates made a good attempt to answer this question, most did not develop their answers sufficiently, using map evidence, to score high marks. Possible advantages included the presence of the beach, coral for diving, boat trips etc., cliff scenery, main road access, space available for development and a possible workforce from the settlements shown. Disadvantages included the lack of built tourist attractions, lack of coastal roads, unattractive features such as the quarry, prison and poultry farm as well as there being no hotels in the area. A number of candidates misinterpreted the question and wrote about the advantages and disadvantages that a tourist industry would have on the area.

Question 2

(a) Only some candidates knew these instruments and there was a large variety of incorrect responses and many omissions. Illustrations and descriptions were not credited as the names of the instruments were required.

(b) In part **(i)** most candidates answered correctly with Wednesday 18th. In part **(ii),** the basic relationship (less cloud=higher temperatures, more cloud=lower temperatures) was usually identified but this was rarely backed up by suitable evidence from the table.

(c) Generally, the rain gauge was known by the candidates and most gave relevant answers, especially in part **(ii).** In part **(i**) however, a common misconception was that the funnel stopped the splashing rather than the height of the cylinder above the ground.

Question 3

In this question, candidates were not always aware that marks could only be awarded for description of the features of agriculture seen in the photograph. A small number of candidates scored high marks for relatively short answers in which they did exactly what was required. Other candidates tried to suggest explanations of what they could see and wrote about aspects of the weather, settlement or scenery, or wrote out what they had learnt about these types of agriculture in class. For Photograph A marks could have been scored by referring to the small rectangular plots, basins or flooded areas, water pipe, digging tool, vegetables and fence. For Photograph B possible points included the large plots, canal or river for irrigation, the crops in rows and greenhouses. For Photograph C marks could have been scored for noting the animals (sheep/goats), scrub, bare ground and fenced areas.

Question 4

(a) Most candidates scored high marks in this section. They were careful to place the letter E completely in zone 6 and ensured that the intensity line drawn separated the 4 and 5 values clearly. To score the mark in part **(iii)**, close reference to the information in Table 2 was required, with most candidates correctly noting that the earthquake would only be felt by a few people at rest or that birds and animals would be uneasy.

(b) This was a potentially difficult question but most candidates scored both marks by noting the correct order of 11, 12, 9, 10.

(c) Knowledge of earthquakes was tested in this section by means of 3 multiple choice questions and there were frequent errors made. One common misconception was that a tsunami was a giant ocean wave caused by tides.

Question 5

(a) Many graphs were carefully and correctly drawn but candidates should ensure that they use a ruler and pencil for more accurate results. The main errors made were a result of misinterpreting the vertical scale and/or incorrect shading.

(b) There was careful analysis of Fig. 7 and many candidates scored full marks.

(c) Candidates coped well with the information in Fig. 8 and most responded accurately and with understanding. It was necessary to use only information from Fig. 8, so those candidates who did not do so and gave other information failed to score marks. Marks could have been scored for noting that uranium ore will not run out for a long time (and is therefore sustainable), nuclear power does not produce carbon dioxide or acid rain (and is therefore not harmful to the environment, small amounts of uranium are needed (and is therefore cheap/sustainable), the safety record of nuclear power stations has improved, the industry is highly-regulated in most countries therefore safer and that the power stations produce raw materials which could be used to develop nuclear weapons.

Question 6

(a) Both parts of this question were usually correctly completed, although, again, some candidates did not use a ruler in part **(ii).** Freehand answers did score if they were sufficiently accurate but this is not to be encouraged.

(b) Candidates coped well with the large amount of information that they needed to analyse in this question. Most gained high marks and quoted relevant examples in their answers.

(c) This was a more challenging question. It was necessary to consider net migration in both islands and then to consider the overall effect on movement between the islands. This showed the overall movement to be from North Island to South Island. There were a few excellent responses which did exactly this and included their calculations to prove the point.

GEOGRAPHY

Paper 0460/22

Paper 22

Key Messages

- When calculating a gradient, the answer should be expressed in a conventional format such as a percentage or as "*1 in ….*".
- In **Question 1**, candidates need to give one answer only in sections such as parts **(b)(i) – (vii)**. Giving more than one answer, where it is clear that only one is required, invalidates the response.
- In questions which ask candidates to describe evidence seen in a photograph, other points which cannot be seen should not be suggested.
- Candidates should be aware of the difference between weathering and erosion.

General Comments

Candidates found the survey map question, **Question 1**, very accessible and there were many high marks. Many candidates scored full marks until part **(f)**, where they did not express the gradient in a conventional format. **Questions 2**, **4** and **5** were also very well-answered with high marks scored very frequently. Many candidates found the photograph question, **Question 3**, difficult. This was partly due to poor understanding of the topic and partly due to poor technique. In **Question 6**, once again candidates demonstrated a high level of competence at drawing pie charts, although their understanding of methods of preventing soil erosion was less strong. Only a very small number of candidates failed to complete the paper and the vast majority completed their answers in the spaces provided.

Question 1

(a) This was a slightly unconventional start to the question but candidates coped well. Almost all knew that the area of the grid squares was 1 km^2, with slightly fewer able to work out that the contour interval was 10 m.

(b) Most candidates scored high marks and showed a strong ability to use the map key. The only common error was in part **(v)** where the water tank was often confused with tea plantation, possibly because of the small shaded area at that location. It was encouraging to see that the embankment in part **(ii)** was not confused with a cutting. As noted above, there were occasions when candidates gave more than one answer (e.g. in part **(v)**, waterhole, well, spring, water tank) but these were fewer than in previous years.

(c) Candidates were able to make good comparisons of the grid squares at Pte Moyenne and La Mecque. The only common error was to fail to spot the populated area at La Mecque.

(d) Many candidates scored full marks for their descriptions of the relief of the area shown on Fig. 3. Credit was given for noting the high land, steep slopes, cliffs, heights between 400 m and 630 m, ridge or spur, col, concave slopes and the flatter land in the south.

(e) Most candidates gave a distance along the road within the permitted tolerance of 2500 to 2650 m. For the compass direction, answers of north, north north-east and north-east were accepted. Only occasionally did candidates give the reverse direction.

(f) Few candidates answered this correctly. Many candidates appeared to do a correct calculation but then failed to express their answers in a standard format. Examiners gave credit to answers

expressed as "1 in ….", (such as 1 in 2, 1 in 2.3, 1 in 2.33, 1:2, 1:2.3, 1:2.33) or as a percentage (such as 50%, 43%, 42.9%, 42.85%) but these were rarely given.

Question 2

(a) This was very well-answered with the majority of candidates plotting eight middle order settlements correctly and estimating that the low order settlements were, on average, 40 km apart.

(b) There was a great variety of possible correct answers to drawing the sphere of influence of town C and many candidates were able to do this correctly. The most common error was to include one of the other towns within the circle. In part **(ii)** most candidates suggested that village B would have a small sphere of influence because it would have few services.

(c) In part **(i)**, almost all candidates understood that the people in village X would use the local grocery shop and primary School, either because it was nearer, or because of the frequent use. Candidates found part **(ii)** more difficult, although may did understand that banks and clothes shops were higher order services that would require a larger threshold population and there would not be enough customers in the small village. Parts **(iii)** and **(iv)** were very well-answered. The furniture store and airport were given as high order services and there was a wide variety of suggestions as to why people from village X would prefer to use the furniture store in city Z. These included easier transport, better quality, more choice, cheaper prices, the other services available and a better reputation.

Question 3

(a) Although some candidates scored full marks, answers were generally disappointing. Some candidates did not know the difference between weathering and erosion, while others described the processes and ignored the instruction to describe the evidence seen in Photograph A. For erosion, the evidence of the waterfall and plunge pool were often quoted but, less frequently, candidates noted the notch cut by the stream, the undercutting of the waterfall, the stepped profile, the valley at top of photo and the exposed rocks. For weathering, candidates usually quoted the vegetation growing in cracks as evidence for biological weathering. Occasionally candidates quoted the loose or fallen blocks of rock. Candidates were not generally aware that the harder layers standing out was evidence of weathering.

(b) In part **(i)** candidates did rather better than in **(a)**. They often noted the boulders, rocks of different sizes, rounded rocks, the colour variation, cracks and layers peeling. In part **(ii)** most candidates suggested exfoliation or freeze-thaw action but others suggested erosional processes. The effect of the wind was often wrongly described as weathering.

Question 4

(a) Candidates scored well on parts **(i)** and **(iii)**, where most deduced that there are active volcanoes in Africa, Asia, Europe, North America and South America, and that most active volcanoes are close to plate boundaries. In part **(ii)** candidates often failed to deduce that there are active volcanoes close to most coastlines of the Pacific Ocean.

(b) Candidates were able to identify the correct type of plate boundary for the volcano they had chosen (all convergent except for Laki). However they did not always expand on this, for example to explain how subduction could lead to melting and rising magma.

(c) Here the Examiners gave credit for noting that, in these years, Tambora and Laki erupted, that this produced ash clouds, the ash clouds blocked the sun, this prevented heating of the Earth and atmosphere, the effect was worldwide and that it affected the whole year. Generally candidates were able to score at least two of these points.

Question 5

(a) There were many good answers which described the iron ore mines as being concentrated in the south and east (or north-east) of the country and the coal mines as being inland in the east (or north-east) of the country.

(b) In part **(i)** there were many candidates who described the raw materials as being nearby or within 250 km of the steelworks. The better answers gave more detail, noting iron ore from East Singhbhum, or Sundargarh, Keonjhar or Durg and coal from Jhana or Raniganj, Bokara, Talcher, Bisrampur or Korba.

The majority of candidates scored full marks in parts **(ii)** and **(iii)**, noting cooling water from the Subamarekha River, Kharkai River or lakes and the railway transport, all shown on Fig. 8.

Candidates found part **(iv)** more difficult with only a minority noting that the other industries indicated on Fig. 8 would provide a market for the steel from the Jamshedpur steelworks.

Question 6

(a) Most candidates plotted the pie chart extremely accurately, with the larger sector between 100 and 102 degrees and with the correct use of the key provided.

(b) This was not well-answered with only a minority of candidates giving the correct answer, *strong winds*.

(c) In marking this part of the question, Examiners had to bear in mind that, although soil erosion is included in ***section 3.5*** of the syllabus, a detailed study of soils is not, so candidates were not expected to have a detailed knowledge, for example of soil structure. Nevertheless, answers which only referred to soil fertility were not given credit. Generally candidates found parts **(i)** and **(iv)** easier than parts **(ii)** and **(iii)**.

In part **(i)** most candidates knew that it would be better to leave strips of vegetation and the better answers explained this as helping intercept rainfall or preventing surface runoff or trapping the soil. In part **(ii)** most candidates ticked to box to plough horizontally across the hillside (they often used the phrase *contour ploughing*) but their explanations were disappointing with a minority of candidates appreciating that this would stop or slow runoff.

In part **(iii)** candidates did not generally appreciate that rotating the crops would help maintain the soil structure or keep the soil together. In part **(iv)** candidates were allowed to tick either box, providing that their explanation was appropriate. Allowing animals on the land would provide dung to maintain the soil structure but keeping animals off the land would prevent overgrazing, or removal of the protective old crop, or erosion by animal movement.

GEOGRAPHY

Paper 0460/23

Paper 23

Key Messages

- In questions that require analysis of information presented in the question, candidates should try not to simply repeat information in the question without processing it in any way. For example in **Question 4(b)(ii)** candidates often quoted the given lines of latitude on Figs. 3A and 3B but this did not provide an answer to the question.
- In **Question 1**, candidates need to give one answer only in sections such as parts **(a)(i) – (v)**. Giving more than one answer, where it is clear that only one is required, invalidates the response.
- Candidates should remember that tributaries join a river, they do not leave it.

General Comments

Candidates responded well to this paper, and it was pleasing to see fewer parts of the paper not attempted than in previous years. Candidates found the survey map question, **Question 1**, relatively straightforward, as they did most of **Questions 2, 5** and **6**. **Question 3 (a)(iii)**, and particularly **Question 4** were found to be more challenging.

Question 1

(a) Most candidates correctly identified features B (power line), C (bridge), D (School) and E (scrub or scattered trees). The road at A proved to be more difficult. It was a main B road, which could be identified, from the key, as a coloured line without outlined edges, or from the label B23, aligned along the road. A number of candidates gave the incorrect answer *main A road*.

(b) The District Boundary was in 2 parts – a SW-NE line and a NW-SE line (both straight) with the direction change at the trigonometrical station. Many candidates described this successfully, through a mixture of directions and descriptions, and achieved 3 marks. Others misinterpreted the question and wrote about the land over which the boundary was passing.

(c) The River Du Poste is a small river, meandering as it flows to the north-east. It has a small number of tributaries, notably the River St Louis, varies in width and braids in places. Relatively few candidates scored all four available marks but many noted the meandering and commented on the tributaries, though some had these as flowing out from the main river. Many also suggested a flow direction, often correctly, though those who had tributaries flowing out often had the direction of flow the wrong way too. A number of candidates included irrelevant information about the valley and land use.

(d) In the table, Happy Village was the most nucleated, the most industrial and on the lowest site, while Haut de Flacq was the most linear. There were considerable differences of opinion over these. This may have been due to candidates not considering the full extent of the village, but rather focussing on the part where the place name was printed on the map.

In part **(ii)** Happy Village has the most services including a hospital, post office, cemetery and church, none of which were available in the other locations, and would thus draw people in from a wide area. Following the same reasoning, Haut de Flacq was also an acceptable answer, with mention of the mosque or dispensary. Most candidates opted for Happy Village and commented on the hospital.

(e) Grid square 1100 contains forest. A few candidates wrote *sugar plantation* which, although present is not natural vegetation. The distance along the road was 3200 metres. Answers of *3050* metres and *3350* metres were also relatively common, suggesting the need for more careful, accurate

measuring. The public building at 145006 was a village hall. Most candidates identified this correctly.

Question 2

(a) Using the list provided, the features on Photograph A were W – stack, X – headland, Y – cave and Z – bay. The most difficult of these was Z, but given the list of possibilities, the correct answer bay could be deduced.

(b) W and X were once joined by an arch, though headland was also accepted here. Many candidates knew this. Some ignored the word "once" in the question and suggested wave cut platform. *Bridge* and *cliff* were not accepted.

(c) Feature Y (the cave) shows erosion above the height of the sea level present in the photograph. It was possible that the water reached this level at a higher state of the tide, and many candidates pointed this out. Some suggested a previously higher sea level. The other approach here was to note the evident weakness/crack in the rock, at this height in the cliff. Some candidates wrote about how the feature was formed rather than why it was formed at that height on the cliff.

(d) A similar argument could be used in **part (d)** to justify the tide being low – the notch, caves, erosion, all at a higher tide level, with the current water level well below. Others commented on the shallow water with sand and rocks visible on the bottom (*coral* was accepted here if it had been used for Z in **(a)**). Most candidates wrote about the features seen on the cliff at the higher tide level. Some candidates suggested the gentle sea was indicative of low tide, while others seemed to associate particular tidal conditions with a particular time of the day.

(e) The wave-cut notch may have formed from hydraulic action, abrasion or solution. The alternative names for these were acceptable. Most candidates had opted for one of these processes. The most common incorrect answer was *attrition*.

Question 3

(a) In part **(i)**, the graph completion was done accurately and it was pleasing to see that very few candidates had omitted this part of the question.

In part **(ii)**, the growth of Brazil's population was due to the birth rate being higher than the death rate throughout the period shown. Many candidates noted this though some wrote about changes in the two rates and others introduced comments about migration.

In part **(iii)**, the –17 000 indicated that more people moved out of Brazil than into the country. Some had this the wrong way round. Others assumed that 17 000 was a total number, either for emigrants or immigrants.

In part **(iv)**, the natural population increase of 8 per thousand could be calculated from birth rate minus death rate (15–7). This was all that was needed, though candidates had often attempted to calculate a total population figure or incorporated something from the migration data. Some candidates were confused by the units *per thousand*.

(b) There were a multitude of possible reasons for the reduction of infant mortality in Brazil, though most popular was *better medical care* and comments on *better food or water supplies*, *better education* or *growing affluence*. However, some candidates wrote about reduction in birth rate rather than infant mortality. This argument often seemed to be based on the idea that fewer births would lead to fewer infant deaths.

Question 4

(a) The ocean currents shown on Figs. 3A and 3B were both cold currents. Relatively few candidates put this. A similarly small number put *warm current*, perhaps due to the latitudes and the proximity of a hot desert. Other popular ideas included *longshore drift* and *prevailing*, while many simply named the currents. A number of candidates did not attempt this part of the question.

In part **(ii)**, many candidates gave answers based on the labelled lines of latitude on Fig. 3, e.g. *the Mojave is between 23½°N and 38°N*, which is true but is not accurate enough for a question asking for a comparison of extent. Given the difficult scale, a range of answers was given credit. Other acceptable answers included noting the Mojave to be further from the Equator or simply its location in the northern hemisphere compared to the Great Australian in the southern hemisphere.

Part **(iii)** was looking for a similarity in the locations, for which similar latitudes was acceptable as was *in the west of the continent*. Many candidates stated that they were both on the coast but this was not given credit.

Many candidates correctly stated *summer* in part **(iv)**, and most then went on to score a mark for valid reasoning, usually by pointing out the location in the southern hemisphere. There were some good explanations based on the position or angle of the sun.

(b) The air above the deserts, shown in Fig. 4, is sinking and warming. Some candidates scored 2 marks but many only got one of these, either pairing sinking with cooling or expanding with warming. A small number of candidates selected more than two choices.

From Fig. 4, it can be seen that the pressure at the desert is high. Almost all candidates had deduced this correctly. However not all were able to relate this to the wind pattern on Fig. 3B, where the prevailing winds are shown to be diverging, blowing away from each other, out of the desert. Some candidates tried to use compass directions to describe the winds but this usually failed to illustrate the idea of divergence.

Question 5

(a) Most candidates successfully completed the graph in part **(i)**. A few reversed the sequence with Americas at the bottom and Europe above, but this was given credit.

Europe had the most tourists in each year, and there were 39 million tourists in the Middle East in 2005. Most candidates had correct responses for both of these.

In part **(iv)**, the correct proportion was 1/10. Again most had the correct answer. A few had 9/10, probably as a result of including Americas and Europe, from the lower part of the bar, in the calculation.

In part **(v)**, candidates had to compare the change in total tourist arrivals between the two pairs of dates. Many selected appropriate figures to do this: either the raw data for each year or the deduced change through each period. A mark was also available for concluding that 1985-2005 experienced the larger increase. Most candidates scored at least one of the available marks. Those who failed to score had often written about the different regions rather than the total overall figures.

(b) This was a more general question with, like **Question 3(b)**, a wide range of possible answers. The most popular suggestions were *wars*, *natural disasters* and *economic issues* such as *financial crisis or currency fluctuation*. Other ideas were *disease outbreak, terrorism, cost of transport* and the effect of *special events such as the Olympic Games*. Many candidates had plenty of good ideas and easily scored the two marks.

Question 6

(a) To complete Fig. 6A, candidates had to insert both continuous vertical lines across Namibia, and horizontal dashes in South Africa. Many had done this correctly, though a few had omitted this section and thus the opportunity for a relatively easy mark.

(b) In part **(i)**, most candidates had located the countries in north Africa, but then had written in general terms for the other areas rather than specifying only one country in east Africa or west Africa. Some had scored a second mark for noting the coastal location of the countries.

In part **(ii)**, most had correctly listed Liberia, D.R. Congo and Egypt to correctly complete the table.

Suggestions in part **(iii)** tended to fall into two categories: those relating to high population and those relating to a lack of infrastructure, perhaps through the inability to afford it. Many candidates had made suggestions relating to these ideas. Incorrect answers often focused on pollution rather than the inability to purify, store or distribute the water. High demand for other uses was valid for tourism, but not for irrigation, since there would be little need for this in areas of high rainfall.

GEOGRAPHY

Paper 0460/03
Coursework

Key Messages

General Comments

There has been an increase in the number of Centres taking this option. Areas of investigation chosen by these Centres have, on the whole, remained fairly traditional, but all have had scope to give information on useful Geography and create interest and enthusiasm for the candidates. More novel Geographical content was fairly limited. This is perfectly acceptable, but new areas of investigation are always welcome. Most Centres had candidates producing sound work on almost all of the criteria assessed, but it is probably more useful to identify shortcomings that can be improved upon along with suggestions for improvement where appropriate. This inevitably gives greater weight in the report to weaknesses, but it must be recognised that a large amount of work was submitted where candidates had performed well in line with their level of ability.

Most Centres, both established on this unit and new to it, have submitted outlines of their proposals to CIE well in advance of the investigations being undertaken. CIE gives advice on the proposals at this stage. In most cases this is relatively minor, passing on a few points of good practice from Centres that have been successful in the past, which might prove useful in early planning stages. Very occasionally it is evident from the proposal that the work planned might not produce sound results, not giving the possibility of high marks for candidates. In such circumstances, CIE offers more substantial advice, guiding the Centre onto an approach that is more likely to allow good candidates to achieve high credit. During the current session, Moderators noted that a number of Centres appeared not to have made such a submission. In most cases, the work being undertaken was capable of producing high marks, but there were a few Centres taking this route that were undertaking work that could not allow very high credit to be awarded, and in a very small number of cases, did not conform to the requirements of the syllabus. This is unfortunate as it prevented candidates from achieving high credit through no fault of their own. Any Centres in this position are advised to send in proposals; responses are always couched in positive and supportive tones.

Moderators identified a number of instances where marks submitted on MS1 forms or on Direct Internally Assessed Marks Reports, were at odds with marks on Individual candidate Record Cards and on WMS320 forms submitted. In the majority of cases, marks lower than those that should have been entered were given to the candidates. Whilst Moderators did identify a number of these instances and corrected them, there is no guarantee that they are able spot them all, and Centres are encouraged to undertake a double check on these to ensure that candidates achieve the marks they are entitled to.

On each of the individual criteria, Moderators have reported on ways in which candidates could have improved on the marks achieved. For Knowledge with understanding, Moderators found that often the guiding question(s) or hypothesis (or hypotheses) were unexplained by any Geographical theory, or any other form of reasoning or explanation to support investigating them. This in itself reduced the number of marks that could be achieved for this criterion, but also had a consequential impact on the Analysis by reducing opportunities of explaining why result did, or did not, match expectations. Sometimes candidates attempt to give some context and locational information to help support their Knowledge with understanding. Whilst this can provide relevant background, it is worth checking whether the material is of relevance. Sometimes candidates did produce lots of information related to the study area, but often much of it had only tentative, if any, links to the work being undertaken.

Methods of investigation were reported in great detail. As in many other sessions, they were reported in great clarity, often with very sound justification of the methods chosen. This does seem to be an area where most Centres had a high degree of competence.

Presentation of information collected was much more variable. Many candidates, and indeed, whole Centres, used a good variety of techniques, including at least one with some complexity greater than simple pie charts and bar graphs. Whilst these techniques can be used effectively, to demonstrate competence with presentation, some more complex processing was needed. For example, if sampling had been carried out along a line of transect, findings could have been shown far more clearly if, say pie charts, had been located on a map of the line of transect, rather than just having been inserted as a group of pie charts. Some Centres achieved impressive presentation by the use of simple statistics. Many candidates had used a scatter graph to show a relationship with distance. A majority had added a line of best fit, judged by eye. Many had then tested the relationship by using Spearman's correlation coefficient with the most able candidates referring to the significance of the result. In this criterion of Presentation and Organisation, the latter part was far more often of a high standard. Most candidates followed a logical ordering of their work, with few, and usually fairly minor, variations from a sound sequencing.

Analysis was much more varied. As has already been noted, candidates who had not made clear why they might expect certain relationships or justified their guiding question, often were not able refer back to theory or explanation of what they had found. This was particularly the case where one or more results did not fit what was otherwise a good relationship. Many candidates falling into this category just pointed out that it was an anomaly. A few accounted for such anomalies as being a result of weaknesses in their data collection. However, the best candidates tried to find explanations for the anomalies. In doing so they called upon Geographical explanation and often referred back to theory to explain deviations. In one Centre, candidates predicted, and supported their hypothesis about changes in infiltration rate along a slope. Often, when anomalies were noted, they used the theory they had outlined in their introductions to offer an explanation. If the rate was lower than expected for instance, they noted that rainfall had occurred shortly before measurement and that this may have saturated the ground reducing infiltration rates.

Conclusions varied in quality as much as Analysis, and the quality of these two criteria often went hand in hand. Candidates, who in their Analysis had merely stated that the findings were in accordance with their expectations, often wrote a conclusion that just merely stated that they had proved their hypothesis or answered their guiding question. Better conclusions identified key findings that either supported their expectations or cast doubt upon them. Some element of Evaluation should be present in a full account of an investigation. Where these stated that they needed more data, that their pencil broke or that their teacher had not prepared a good recording sheet for them, were not able to be credited far by anyone assessing the work. Suggestions for improvement, supported by explanations as to how the improvements would produce more reliable results, could be credited much more. CIE Moderators did note that some annotations on pieces of work noted that evaluation had been attempted; therefore Level 3 had been awarded. Evaluation does need to show good qualities in order to justify high marks.

Centres will have received a report on the overall quality of work from their candidates. Moderators are likely to refer to some of the areas above to indicate where marks could be improved, or to justify any change in marks that were recommended. It is worth pointing out that a very high proportion of marks from Centres were recommended as 'No change'. For a small number of Centres, a modest downward adjustment was recommended to all, or parts of the mark range. The reports to Centres should enable them to identify where weaknesses occurred and address them in future sessions. An even smaller number of Centres had a recommendation that their marks should be increased. These tended to be new Centres that had not fully appreciated the standards required for this age group of candidates. Again, the reports should indicate where and why greater credit could be awarded in future sessions.

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 recurring despite the entry being a fresh batch of candidates with several new Centres. Here are a few key messages that 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 answer with evidence from Tables 5 and 6 and Figs 6A and 6B.*
- Take into account the marks awarded. 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 wastes 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 answers.
- When completing graph work use a dark-coloured pencil 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 located 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. Weaker candidates scored well on the practical questions, such as drawing and interpreting graphs and tables, and candidates of higher ability scored well on the more challenging sections requiring explanation and judgement especially regarding hypotheses. Overall **Question 2** proved to be slightly 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 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 the length of their answers. Most points for teachers to bear in mind, when preparing candidates for future Paper 41 questions relate to misunderstanding command words and familiarity with fieldwork techniques and equipment. Particular questions where candidates did not score well often related to them not carefully reading the question, for example **Question 1(d) (i)** where candidates were instructed to look at the equipment shown in Fig. 2. As in some previous papers there was a question which required candidates to suggest improvements to the fieldwork investigation methodology. Such questions are frequently included on this paper and are an area which Centres should practise with candidates. **Questions 1(c) (iii)** and **1 (d) (iv)** required candidates to use geographical theory which they had learned in class to explain the results of fieldwork.

Centres need to be aware that, although this is an Alternative to Coursework examination, candidates will still be expected to show that they know how fieldwork equipment is used and appropriate fieldwork techniques even if they have only limited opportunity for fieldwork within the centre. For example **Questions 1(a) (i)** and **(ii)**, **1(b)** and **(2(b) (i)** focussed on specific equipment and techniques, commonly used in fieldwork

SECTION 4

Comments on Specific Questions

Question 1

(a) (i) The main factors which candidates considered were safety and distance between sites. Some candidates limited their answer to safety measures to be taken which was not the focus of this question.

(ii) Candidates were helped by the use of 'trial' in the question wording. In the past candidates have had difficulty understanding the term 'pilot study'. Candidates generally focussed on advantages such as testing methodology and fieldwork equipment. One common error was to suggest that results from a pilot study could be compared with the actual study. However, this was not acceptable because the pilot study was being done at a different river site.

(b) Candidates should have used Photographs A and B to answer this question. The photographs showed the equipment being used. Generally candidates could describe the methods being used, although with degrees of accuracy. The best answers stressed that measurements were made from bank to bank across the river, and the ruler was placed on the bed of the river to measure depth.

(c) (i) Candidates had to perform a number of simple tasks to gain maximum marks. They had to plot the two measurements, draw in the wetted perimeter line which must go to zero depth, and shade in the river channel. Whilst most candidates correctly plotted the measurements they did not complete the other tasks accurately. A small percentage of candidates omitted the question completely.

(ii) This was a challenging question for many candidates who seemed uncertain what the wetted perimeter was, despite having just completed it in the previous question. Generally candidates did realise what equipment could be used but descriptions of measuring were vague.

(iii) Most candidates could suggest factors which affect a river's speed of flow. Common answers included gradient or steepness and rocks or vegetation growing in the river. Answers which were not credited included depth and width as these are part of the wetted perimeter, and the amount of load being carried.

(iv) Candidates generally reached the correct conclusion to hypothesis 1 that it was correct. Better candidates recognised the anomaly in the width and stated that the hypothesis was partially true. Many candidates used the statistics well to support their conclusion. They needed to include paired data to show changes downstream.

(d) (i) Many candidates failed to use Fig. 2 or did not understand how the equipment could be used to measure rock size and roundness. Candidates had to state what they were using the ruler to measure, i.e. length or width. Some candidates did not refer to the roundness chart but suggested that roundness could be measured by 'eye' or by 'feel' or by 'wrapping a tape around the rock'. It was important that candidates stated how they would use the chart to compare with a rock sample.

(ii) Most candidates plotted both bars accurately. A minority used the wrong axis to plot the average roundness score.

(iii) Most candidates reached the correct conclusion about hypothesis 2 by recognising that it was true.

(iv) This was another challenging question for many candidates. Better candidates did suggest that erosion processes such as attrition and abrasion would modify the shape and size of rocks downstream.

(e) This question requires candidates to suggest improvements to the data collection methods that have been used in the investigation. It is a common way to extend their thinking about the investigation. Weaker candidates continue to suggest that the investigation should be repeated and more measurements should be taken without specifying how this would improve the investigation. It is important to explain what data collection method needs improving and how this might be done. Better candidates were more precise in their suggested improvements for measuring and sampling. Answers which were uncommon but gained credit were to measure the volume of rocks rather than just the length, and to use callipers to measure the length rather than just a ruler.

Question 2

(a) (i) Most candidates correctly identified service industries as being part of the tertiary sector of industry.

(ii) Most candidates completed the pie chart accurately. A small minority reversed the position of the two segments and only gained one mark for correct shading. Segments must be inserted into the pie chart in the order which they appear in the data table.

(b) (i) Sampling methodology is a key component of fieldwork but one which candidates seem to struggle to understand. Weaker candidates often confuse sampling with doing a survey or using a questionnaire. Systematic sampling was the most commonly suggested method which was often described in terms of 'ask every tenth person'. Candidates who named random sampling often repeated random as their description which was not accepted without elaboration. Few candidates who named random sampling suggested random numbers as the correct way to do this method. Few candidates suggested stratified sampling as a method. Justification for sampling was usually to avoid bias and to make the test more representative. Accuracy was not accepted as a justification.

(ii) Many candidates realised that the questionnaire only made sense if local opinion was surveyed as local people would be more knowledgeable about the mine and its influence.

(iii) Almost all candidates plotted the two bars accurately.

(iv) Most candidates correctly concluded that hypothesis 1 was not true. They supported their conclusion with appropriate data from the two tables.

(v) Many candidates suggested valid ways to overcome the problems of traffic, noise and dust. Popular suggestions included special transport to the mine, change to road routes, limiting blasting times and sound-proofing buildings. Some answers were unrealistic such as 'only blasting when residents are not at home', 'covering the mine with a dust shield' and 're-locating the town or mine'.

(c) (i) Many candidates plotted the two flow lines accurately, but some did not look carefully at the scale and drew them too wide. A few did not use rulers which made the task very difficult. A significant percentage of candidates did not attempt the question.

(ii) Describing distribution of features on a map is an important geographical skill and many candidates made a good attempt at the task. There were four aspects which candidates could focus on – grouping of towns, direction, distance from the mine, and whether they were in Botswana. Better candidates referred to clustering and whether towns were close to international borders, or close to the mine, and gave appropriate directions from the mine.

(iii) The most common answers were that the flow line map showed direction of movement to the mine or how many moved to the mining town. Only a small minority of candidates referred to the technique of using flow lines as a good visual method of presentation.

(iv) Many candidates identified the most appropriate reasons for movement to the mine, although all distracters gained some support. Answers 1 and 5 were most commonly identified as correct. Answer 6 was frequently replaced by incorrect answers 2 or 4.

(d) Many candidates made sensible suggestions of problems for mine workers. The most popular answers referred to being away from their family, poor or dangerous working conditions, and poor wages.

GEOGRAPHY

Paper 0460/42
Alternative to Coursework

General comments

Most candidates found this examination enabled them to demonstrate what they knew, understood and could do and was slightly more accessible than previous papers with fewer sections being done badly or omitted than previous sessions. It appeared to be a positive experience for most candidates with higher marks at the bottom and top ends. Weaker candidates scored well on the practical questions, such as drawing graphs, calculations and diagram completions and those of higher ability scoring well on the more challenging sections requiring explanation and judgement especially regarding hypotheses.

There is less general advice to be given for areas for improvement with this paper as with others. As there are no question choices to make, it is difficult to miss sections out – though candidates do (especially completion of graphs) - and there were no reports of time issues as the booklet format does not allow or encourage over-writing of sub-sections.

Most points for teachers to consider, when preparing candidates for future Paper 42 questions, relate to misunderstanding or ignoring command words and the use of equipment in fieldwork. Particular questions where candidates did not score well also often relate to them not fully reading the question. Such failings mean that some candidates do not obtain a mark in line with their geographical ability and is an area that Centres should work on.

It is important to bear in mind that although this is an Alternative to Coursework examination, candidates will still be expected to show that they know how fieldwork equipment is used even if they have only limited opportunity within the Centre. Familiarity with maps, tables and various graphs is also important to this examination. **Question 1** required candidates to know about weather instruments and data types as well as comparing maps, drawing pie charts, creating divided graphs and completing horizontal bar charts as well as applying knowledge and understanding to hypotheses. **Question 2** required candidates to have experience of organising a pedestrian count, using a quadrat as well as plotting scatter and bar graphs and analysing and making judgements from tables with regard to hypotheses.

Key Messages

- 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.
- When giving figures in an answer always give the units if they are not stated for you.
- When shading graphs, use the same style as that provided in the Question or Figure key.
- Read questions carefully and identify the command word e.g. *Describe..., Explain.., Compare...*
- When asked to compare use words like "*closer", "nearer"*- not "*close" or "near*" – see **Question 1c(ii)**.
- Check you are using the Resources that a question refers you to e.g. Table 1 and Fig.5.
- Take into account the marks awarded. 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 wastes time.
- If you have to write more than the lines allowed indicate this with a phrase such as (*continued on page 12*). This is very helpful to the Examiner in finding your answers.

Comments on specific questions

Question 1

(a) (i) Almost all candidates gave the 4 correct dates; a few gave 16th instead of 10th October. The month was not needed though a small number put September for which they were not penalised. A few just gave 3 dates and some just the highest date.

(ii) This was done well with 80% of candidates naming a 'rain gauge.' Other answers included parts of the rain gauge e.g. measuring cylinder, barometer, annometer and thermometer. It is expected that candidates would know the basic function of the most common weather instruments.

(iii) This was the question that candidates found most challenging on this paper. Many candidates just rewrote the information on Fig.2 in the Insert without giving any reasons for the delay. Expected answers included references to the usual causes of time-lags in drainage basins such as infiltration, interception by trees, throughflow, surface run-off, time taken to get to the measuring point and the river being at a low level to begin with. Few of these answers were seen; Centres should focus on rainfall: run-off relationships when they teach rivers/flooding issues.

(b) (i) Candidates also found this question tricky despite the fact that the type of information used is a basic geographical definition. Candidates should be familiar with Primary and Secondary information and be able to choose '*searching the Internet'* as Secondary but only 3/4 of the candidates chose this.

(ii) This was one of the better answered questions as almost all candidates could look at the maps and identify two changes – mostly the increase in urban area and the decrease in woodland. Those that did not get 2 marks often put the years around the wrong way or referred to less parkland but that was not true; it was almost similar in both years though its location had changed. A small number suggested the population had increased; that is not the same as an increase in urban area though.

(c) (i) The focus of this question was on "buildings" and the "floodplain" so any reference to fertile soils or tourism and scenic views was not accepted. 1 max. mark only was allowed for the use of water or the river. *Flat land* and *cheap land* were acceptable as was the use of water in industry for cooling machines or transporting materials. The water had to used for something to get the mark.

(ii) The key to answering this question was the command word ***"Compare..."*** Those that took this on board gave good comparisons such as *"closer to the river*"; or "*further to the east than manufacturing*". Some also compared upstream and downstream noticing the flow arrows on the river. Those that did not compare – about 1/3rd of candidates – stated that residential use was in the east or far away from the river but did not then give the comparison with where the manufacturing buildings were. Some just described the building patterns e.g. linear or nucleated or dispersed.

(iii) Occasionally pie charts are fully credited even if they are done the "wrong way round". However on this occasion, where the key clearly ran sequentially in five groups, full credit was only given if the line was plotted at 4% from the vertical and the shading was in the order of the key. Many candidates did this well, though some of the shading, especially the vertical lines, was marginal. A few plotted the line at 5%. One mark was awarded if the shading of the larger slice was correct but the 4% had been plotted between 80 and 90. 5% of candidates did not attempt what should have been a simple pie chart completion.

(iv) This hypothesis question was very well done. Most candidates could state that the hypothesis was incorrect and then refer to the main use being shopping (with the 55% statistic) and compare it to manufacturing with only 12% of the space.

(d) (i) This question differentiated well between candidates; it was either done very well or very badly or not at all. 8% did not attempt this question; the highest omission rate on the paper. Most found it a fairly straightforward exercise to label the axis 0-110 and then plot a line at 15 (from either side) and shade the two areas with a key. A few did the plotting but then gave the key the wrong way round with Yes for the 95 section! Some plotted and shaded correctly but then forgot to provide a key for the shading.

(ii) Plot 64 on the graph from the table information proved an easy exercise for most candidates though a few misread the horizontal scale and plotted four squares across instead of two. Some shading was unclear but it was the plotting that gained the mark.

(iii) Canddiates struggled with this question. Candidates must be aware that, if they are given a table such as this, they should not rewrite the table as evidence that supports the hypothesis. If 101 businesses lost customers, stating that is meaningless unless it is related to the total e.g. 101/110 or 92% lost customers. This was where most candidates did not get marks – they could select the highest figures but did not put it in context of the total number of businesses. Weak expressions such as '*many..., lots..., a majority...'* were not enough for credit; candidates also needed to choose the highest numbers to support the hypothesis so 64 and 27 were not accepted as evidence here.

(e) This was quite well done. The best candidates referred to detailed opportunities such as good fertile soil for rice farming, flat land for building purposes or water for irrigation and problems such as water-borne diseases such as cholera and loss of houses. Some weak answers were vague such as good water supply, good land, flooding, pollution – these were not credited.

(f) Many candidates did well here by choosing four strategies and also explaining how they would prevent further flooding although that was not required. Embankments, levees, dams, channel deepening/straightening and channel diversion plus planting of trees all gained credit. Those that did not score on this question often gave suggestions as to how to avoid flood damage rather than to prevent flooding so the suggestions of *not building on the floodplain* or *having early warning systems or evacuation plans* were not relevant. These would not prevent flooding but might minimize its effects. This is a difference that candidates need to be aware of.

Question 2

(a) (i) There were many suggestions as to why this was a popular tourist site with the mark scheme looking for reference to the historical nature of the tower, the scenic view from the hilltop and the ease of access by roads and paths. There were many answers that came close such as monument, heritage site, ancient building and various dates from medieval to Victorian suggested. The majority of candidates did come up with the answers in the mark scheme though.

(ii) 71% of responses were correct in giving the answer as café a minority of candidates thought a shopping mall would be located close to the tourist site shown on Figure 8.

(b) (i) Candidates needed to look at the resources referred to up to this point before answering. The map showed that the two paths had been decided, and the 5 sites chosen on each path, so there was no credit for suggesting these as part of their organisation Clearly there would need to be a group at each site counting walkers going to the tower at a set time for a set period using a tally or counter to record the numbers. Many candidates had one person at many sites counting the walkers both ways at different times and even days. Others suggested sampling by counting every 10^{th} person and some suggested giving out brochures or tickets and then adding how many brochures or tickets had been given out to get the total. Some suggested taking a video and doing the count back at the School which is not in the spirit of fieldwork. Overall candidates found this the most difficult question on Question 2.

(ii) This was done well with almost all candidates recognising the tower was open, it was a weekend/holiday and the Sunday weather was warm, sunny or dry. A few just said "*better weather*" which is too vague but most scored both marks.

(c) (i) A good deal of correct plotting was seen here; indeed 92% of candidates gained both marks. Those that did not either gave too large a plot to be sure of its location or plotted well away from the 12 and 27 required.

(ii) The question clearly asked for reference to Figure 9 only i.e. the graph just plotted. To agree with the partial decision it was vital that candidates noticed the higher number at Site 1 then the decrease to Site 4 on both paths followed by the dramatic increase at Site 5 where the tower was. A number of candidates just gave evidence for an increase or it being higher at the tower and limited themselves to two marks because the partial decision hinged on spotting the decrease from Sites 1-4 on both paths as well as the overall increase. Over half did this quite well though.

(iii) The key here was for candidates to look at the graph in Figure 9 and suggest how and why such patterns could be found on a survey where the walkers were all counted at the same time. Perceptive candidates realised that, with a car park at the start of Path A, there would be more walkers there having come by car. Others realised that numbers might tail off because people got tired or had no intention of climbing up to the tower. The increase on both paths at Site 5 could also be accounted by people having wandered off the paths at Sites 2-4 then rejoined them to be added on at Site 5. Equally some people were already at the tower and could be counted at Site 5 while walking around it even though they had got there by a different path. The more imaginative candidates did well here; others just attributed the high numbers at Site 5 to everybody hanging around the tower but the explanations were more subtle and, therefore, more difficult than that.

(d) (i) Answers to this question were not particularly strong. Most Centres should possess a quadrat and the key uses of it are to put it on the ground, estimate using the squares the amount of vegetation and/or bare soil in each square; total it and then convert this figure to a percentage – in this case by multiplying 25 by 4%. Many candidates did not realise that the 5 sites on each path had already been chosen; there was no need to measure the distances between sites, use systematic or random sampling techniques or throw the quadrat over the shoulder as suggested. Many had little as to how to use a quadrat suggesting laying it on a path and estimating the percentage from the "boxes" (not squares). Some suggested taking a photo of the quadrat and then doing the estimate back at School which is not in the spirit of fieldwork. This is a basic fieldwork technique which Centres need to cover.

(ii) Apart from the bar charts that were plotted upside down or not shaded correctly, this was done well by 89% of the candidates.

(iii) Although quite a few candidates made the judgement that Path A was partially true, when the data is carefully considered, there are too many fluctuations to consider crediting that answer. It is clearly incorrect to agree that footpath trampling (based on percentage change of vegetation/bare soil) increased as one got closer to the tower. This is especially the case when Path B is compared where the change in percentage of vegetation/bare soil is consistent between Sites 1 and 5 to justify agreement. Many gave no decision on the hypothesis although their evidence was worth credit.

(e) Some sensible suggestions were made here. The most common included the investigation of all the paths or more paths; more sampling sites along the paths looked at and doing the survey in different weather or seasons. Candidates who just stated *take more measurements, use better equipment* and *repeat the investigation* are unlikely to get credit for such vague answers. Many candidates thought the sites should be equidistant; this is not relevant to counting walkers along a path.

(f) This was a fairly straightforward last question which was done successfully by those candidates who realised it was a practical question asking what evidence could be found of management strategies. These candidates thought about what could be seen and suggested rubbish/recycling bins, signs telling walkers where they could/could not go, fenced-off areas, concrete paths, and rangers/guides. These were all possibilities that gained credit. Other candidates, though, did not read the question carefully and gave suggestions as to what management strategies could/should be introduced. These gained no 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 answer with evidence from Table 9 and Fig. 8.*
- Take into account the marks awarded. 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 wastes 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 answers.
- When completing graph work use a dark-coloured pencil 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 located 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. Weaker candidates scored well on the practical questions, such as drawing and interpreting graphs and tables, and candidates of higher ability scored well on the more challenging sections requiring explanation and judgement especially regarding hypotheses. Overall **Question 2** proved to be slightly 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 the length of their answers. Most points for teachers to bear in mind, when preparing candidates for future Paper 43 questions relate to misunderstanding or ignoring command words and the use of appropriate fieldwork techniques. Particular questions where candidates did not score well often related to them not carefully reading the question, for example **Question 1(b) (v)** where candidates were directed to look at Table 1. Some candidates looked at Table 5 which gave inappropriate data. As in some previous papers there was a **Question, 2(d)**, which required candidates to develop their own hypothesis and investigation methodology. Such questions are frequently included on this paper and are an area which Centres should practise with candidates. Another **Question, 1(e)**, required candidates to use geographical theory which they had learned in class to explain the results of fieldwork.

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 all parts of **Question 1(a)**, **2(b) (i)** and 2 **(b) (iii)**, and **2(c) (i)** focussed on specific equipment and techniques, commonly used in fieldwork.

Comments on Specific Questions

Question 1

(a) (i) To answer this question successfully it was necessary to read and understand the question introduction. Candidates that did this realised that some decisions about planning the fieldwork had already been taken. These included the number of sites and their location on the four roads, and the times and duration of the traffic count. The question asked candidates to refer to planning and recording the task rather than doing it. Candidates who focussed correctly on the task suggested aspects of organisation such as working in groups, synchronising stopwatches and tally counting.

(ii) Most emphasis was placed on problems that would make counting difficult, such as too much traffic in too many lanes and traffic moving too fast. Other valid problems focussed on candidate boredom doing the task for one hour and vehicle fumes. Weaker candidates failed to score marks through incomplete responses, such as rain, cold, sunny weather without explaining the problem these conditions might cause for conducting the traffic survey.

(b) (i) Almost all candidates correctly totalled the number of vehicles in Table 1.

(ii) Most candidates correctly completed the divided bar graph. The main error was that some candidates incorrectly plotted the vans section at 139 instead of 140.

(iii) Whilst the majority of candidates correctly chose a pie chart as a suitable graph, the other distracters did attract some support.

(iv) The decision making question was well answered by many candidates. They recognised that the hypothesis was true and then noted the decreasing trend during the day. Many candidates then supported their decision with appropriate statistics to show the change, usually concentrating on the decline in total number of vehicles.

(v) Candidates were directed to look at Fig. 1, the map of the survey area, to help them to answer. This showed that site 7 received traffic from an industrial area and site 3 received traffic from a residential area. Candidates who realised the difference between the two survey locations reached the valid comparison between numbers and types of vehicles passing the two sites in the early morning. Weaker candidates did not recognise the significance of the locations or the survey time. Some candidates incorrectly used Table 5 to answer the question which dealt with the traffic flow index not number of vehicles.

(c) (i) Almost all candidates calculated the traffic index scores correctly.

(ii) A small percentage of candidates did not plot and complete the traffic flow line. Otherwise most candidates correctly completed the line.

(iii) The conclusion to hypothesis 2 proved to be a challenging question, but differentiated well. The most common conclusion was that the hypothesis was correct and many candidates recognised which roads were above and below the appropriate congestion levels. Many candidates did not give sufficient supporting data which required details of the site, time of congestion and index of flow at that time. Weaker candidates did not appreciate the idea of congestion level and referred to sites 1 and 2 being busier than the other sites.

(d) This question also instructed candidates to look at Fig. 1 to see the location of the planned shopping area. The best answers considered both sites 5 and 6 together in recognising the possible increase in traffic and likelihood of congestion.

(e) Most candidates scored marks for this question and many achieved maximum marks. Many suggestions were made which varied from simplistic ideas such as building more roads to specific measures such as constructing flyovers. Popular suggestions were to introduce a congestion charge and bike or bus lanes. An example of an answer which was not credited was to encourage people to use public transport. Such an answer needed a specific way such as reducing prices or increasing frequency.

Question 2

(a) Consideration of safety issues in doing fieldwork is a common question on this paper. Many candidates were able to make two valid, sensible suggestions. Some candidates were not awarded credit because their suggestions were impractical or unrealistic, such as 'learn to swim' and 'wear a lifejacket' and 'don't go into the river'. Candidates should realise the scale of river being investigated and that teachers will not endanger candidates by taking them into unsafe situations. Typical rivers used for fieldwork are shown in Photographs A and B. In both these situations candidates are working in the river safely and appropriately attired with no need for lifejackets, or being roped together to prevent them being swept downstream.

(b) (i) Most candidates suggested appropriate fieldwork equipment for the measuring task. Some candidates included a 'floating object' which was not credited as this was identified on the recording sheet. Many different floating objects were suggested with an orange being most popular. Some answers included the irrelevant suggestion of a flowmeter which was inappropriate to the data shown.

(ii) Most candidates calculated the average velocity correctly and showed the necessary stages of the calculation. Some candidates gave the correct answer but did not show the stages in reaching the final answer and so were not credited with full marks.

(iii) There were many valid suggestions about why the two sets of results varied. Candidates referred to different floats, obstacles in the river, measurements being taken at different times and candidate errors in measuring. There was good understanding shown that variations may be caused by the river flowing at different speeds across a meander. An error made by some candidates was the assumption that differences in measurement would have been caused by candidates measuring at different sites in the river. These candidates did not read the heading to the results table which states that the times were taken at site 1.

(iv) The task to measure the downstream gradient proved to be a good discriminator. Candidates were told to look at Photograph A to see this task being undertaken. Good answers included detail such as the poles being vertical and lining up the same points on two ranging poles. A misconception of some candidates was that the task involved measuring the angle from the centre of the river to the bank. A few candidates thought that a clinometer was used to measure distance.

(v) Most candidates recognised that hypothesis 1 was incorrect. They then went on to state what a correct hypothesis would be using the data. They then used paired data to support their conclusion to gain the third mark.

(c) (i) Most candidates gave correct and sensible pieces of equipment to measure the width of a river. Answers which were not credited included 'stick' 'rope' and 'person'.

(ii) Almost all candidates correctly plotted and completed the channel cross section.

(iii) Similarly most candidates correctly plotted the measurement on the scatter graph. A small percentage again omitted this question.

(iv) Many candidates correctly interpreted the data which they had plotted to make an accurate conclusion to hypothesis 2. Most candidates stated that the hypothesis was correct or partially correct. The better candidates also recognised that either site two or site three was an anomaly to the trend. Weaker candidates concluded that the hypothesis must be incorrect because of the anomaly, thus missing the general relationship which is apparent.

(v) This was a challenging question, especially if candidates had not done fieldwork on measuring the wetted perimeter of a river channel. Fig. 7 provided information about how this task was undertaken and so this question required candidates to think about possible problems of doing this work in a larger river. In general candidates recognised the impracticality and possible danger of doing this task in a river which may be wider, deeper and have a stronger current.

(d) This was a challenging question which required candidates to think about a different type of investigation which could be carried out in a river. The focus had to be on the impact of people on the river. The dominant suggestion was to investigate some form of pollution in the river. Vague answers suggested a litter survey in the river and supported this idea with unrealistic ideas such as collecting and counting rubbish in the river. Better suggestions focussed on sampling before and after an urban area, factory or similar source of pollution at regular intervals downstream to see changes in pH, clarity or colour of the water. A few answers focussed on kick sampling to investigate aquatic life in the river. Another method which had merit was to use a bi-polar survey to compare different sections of the river. To answer this type of question well answers need to be realistic and practical which will provide data for graphing and analysis.

GEOGRAPHY

Paper 0460/05

Computer Based Alternative to Coursework

General comments

Generally candidates coped well with this examination/simulation but performance obviously varied between centres. As in previous sessions, candidates seemed to find the questions which involved matching up answers, labelling and completing graphs relatively easy. However, with the answers that required a description, an explanation and knowledge, often more detail, depth and use of data was required.

The simulation was based on an investigation into the impact of two power stations (one nuclear and one wind farm). Two hypotheses were investigated. The first related to the impact of each power station on the local environment; the second related to the preference/views local people had on the power stations.

It should also be noted that, like Paper 41/42/43, this is an Alternative to Coursework examination. Candidates therefore still need to know how to use fieldwork equipment in detail (and ideally have some experience of using it). Candidates also need to know about the different methods of collecting data (and again have experience of doing it).

Key messages

Here are some key messages which will help candidates do well in the future:

- Learn the key terms carefully
- Read the questions carefully
- Look at the resources you are directed to
- Use evidence and data to back up your answer
- When quoting data evidence use the total figure too (8 out of 20 people)
- Make sure you *explain* and *describe* answers in detail
- When asked to compare, you need to use words such as larger, smaller, lower, higher, quieter and noisier (or more than/less than)
- Look carefully at the number of marks awarded for the question –and write accordingly
- Use the word *accurate* carefully. Repeating a survey or collecting more data does not make it more accurate, it makes it more valid/fair/representative
- Always qualify pollution (water/noise/air)

Comments on specific questions

Question 1

This question involved the completion of sentences relating to energy resources. Over half of the candidates found this question easy and gained full credit. They knew that fossil fuels were formed over millions of years from the remains of plants and animals; they knew that renewable meant that the energy source will not run out and knew that sustainable meant that the resource will not harm the environment. Some candidates lost credit as they mixed up renewable and sustainable.

Question 2

This question involved the candidates identifying energy sources from pictures of different power stations and explaining how the power stations worked. Most candidates correctly identified the source of energy (A was water/HEP, B was sun/solar, C was geothermal/heat from the earth and D was coal/thermal). Explanations of how the fuel was used to generate the electricity varied and many candidates wrote an answer that was rather vague and over long. The answer to A needed to have an explanation that included water being stored in a reservoir, goes through the intake pipe and then turns the turbine. This was a popular choice and usually answered well. B needed to have an explanation that the sun shone on the cells/panels and that they absorbed the heat. Again this was a popular choice and answered quite well, but some candidates did not refer to the absorption of the heat. Responses to C needed to explain that cold water was pumped into the earth, the heat from the ground heated the water and there was steam produced. D was not often chosen but responses needed to explain that coal was used to heat up water, which produces steam.

Question 3

In this question, the candidates had to identify how much of the world's energy came from fossil fuels. There were many different answers to this and about half of the candidates gave the correct answer of 85%. This may have been due to difficulties with adding up the figures or incorrectly thinking that nuclear power/uranium was a fossil fuel.

The candidates also had to suggest why some people are concerned by the high usage of fossil fuels. Their answers were mainly good (such as they are non-renewable/will run out, they cause air pollution or they contribute to global warming) but vague answers such as 'they are harmful to the environment' were not given credit.

The candidates also had to give an example of a non-renewable and a renewable energy source. This was quite well answered –with the most popular answers being oil and coal for non-renewable and solar, wind or hydro-electricity for renewable.

Question 4

In this question, the candidates were asked to give advantages and disadvantages of both coal and the sun as sources of energy. Only the minority of candidates said that an advantage of coal was that there were large reserves available but most were able to give a disadvantage such as it was non-renewable, it caused air pollution or contributed to global warming. Regarding solar, most candidates correctly wrote that an advantage of using the sun to create energy was that it was renewable or that it did not cause any air pollution. Most were also able to say that a disadvantage was that the sun did not always shine and so the opportunities for generating power limited by this.

Question 5

In this question, the candidates had to work out the correct grid reference for Dunkley power station and measure the distance from the centre of town to the power station. Most candidates found this question easy and gained full credit. This was for correctly identifying that the power station was at 748340.

Question 6

This question considered the reasons for the location of the two power stations. Many candidates found this question rather challenging and few gained full credit. Most candidates gave some good location answers but did not say why they were good (they needed to expand their answer more). Good answers for Dunkley nuclear power station included that it was in a good location because it was near the sea for cooling water, was on flat land for easy building and near the road so that it was easily accessible for the workers. Similarly, Bleakmoor wind farm was in a good location because it was on high land so received more wind, was in an open area so that it was more exposed to wind and it was away from the town so that there were few complaints about noise pollution.

Question 7

This question involved the candidates deciding on what additional information should be put on an environmental quality survey sheet. Most candidates correctly chose the name of candidate and the date and time.

Question 8

This question involved working out the total environmental quality score for the two power stations. This was done very well with a large majority of candidates gaining full credit for saying +2 for Bleakmoor and –6 for Dunkley.

Question 9

For this question, candidates needed to complete a bar graph to show the two environmental quality scores. This question again was very well done and correct bars were produced for Bleakmoor (+2–) and Dunkley (-6).

Question 10

This question involved considering the advantages and disadvantages of using an environmental quality survey and how the method could have been improved. Some candidates found this difficult and did not appreciate that an environmental quality survey is not the same as a questionnaire. However, many candidates correctly said that an advantage was that it was an easy method to do or that is was an easy way to compare the two power stations. Only the more able candidates (or those that had done a similar survey themselves) correctly said that a disadvantage of this method was that it was subjective or the individual candidates view. Many candidates struggled to give a correct answer for an improvement to this method but some candidates realised that repeating the survey or getting another candidate to do the survey (and taking an average) was an improvement. Very few candidates suggested using instruments to measure the impacts (such as a decibel meter).

Question 11

This question considered the first hypothesis 'Dunkley nuclear power station has a greater impact on the local environment than Bleakmoor wind farm'. Most candidates correctly supported the hypothesis. Many then went on to get credit for giving comparative statements about the power stations. Good examples included that Dunkley created more traffic noise, caused more air pollution, caused more visual impact and also caused more farmland to be lost. Correct data was also included (such as Dunkley scored –3 for loss of farmland which was much higher than Bleakmoor with +1). However, some candidates missed out on credit as they wrote two separate passages (one on Dunkley and one on Bleakmoor) and used data but without making a proper comparison.

Question 12

This question was concerned with the questionnaires used to find out the views that local people had about the two power stations. The question asked for the reasons why two preliminary questions were asked - concerning whether the people to be questioned were local and/or worked at one of the power stations. Many candidates correctly realised that the hypothesis related to local people so they did not want to include answers from tourists/visitors to the area. Many candidates also correctly realised that if workers were interviewed, then they would be biased.

Question 13

This question was concerned with where the questionnaires took place and why the local town was preferable to visiting people in their own homes. Many candidates gave two correct reasons such as there would be more people in the town and it was less intrusive than knocking on doors. The second part of the question asked candidates to describe a suitable sampling technique to use in the town. Some candidates correctly names systematic and went on to describe that they would stop and interview every 5th person (or similar). Some candidates said systematic but then did not know what this entailed and others were unable to name a correct method. Random and stratified methods were seldom mentioned and again candidates did not seem to know how these methods worked.

Question 14

This question involved the candidates completing a bar graph to show the results of the questionnaires for Bleakmoor. Almost all candidates dragged the bars correctly (5 for **Question 2/a** lot of traffic and 9 for **Question 3**/spoiling the view).

Question 15

For this question, the candidates had to write labels for the divided bar graph showing advantages for Bleakmoor wind farm. Almost all the candidates correctly gave more jobs in the area for label 1 and no air pollution for label 3. A few candidates incorrectly just put the number of responses.

Question 16

This question considered the second hypothesis 'Local people prefer Bleakmoor wind farm as a way of producing electricity rather than Dunkley nuclear power station'. The candidates needed to give supporting reasons and data evidence that hypothesis was partly true. Some correctly used comparative statements with data and included environmental and economic ideas (from the questionnaire results). Answers needed to refer to jobs, noise, traffic and view. Good examples included that (environmentally) people thought that Bleakmoor created less traffic (5/30 compared to 21/30) and did not spoil the view as much (7/30 compared to 17/30) but (economically) Dunkley was preferred as it created more jobs. However, some candidates missed out on marks as they wrote two passages (one on Dunkley and one on Bleakmoor) and used data but without making a proper comparison. Some answers were too long and needed to focus more on the relevant issues (not cost, size or age of the power station).

Question 17

For this question, the candidates needed to name and explain two improvements that could have made the candidates' investigation better. Most candidates performed reasonably well on this question suggesting that that there could be more questions, more people or more open ended questions asked. However, some candidates did not get credit for explanation as they wrote vague answers (such as they would get better results or more accurate results). Good explanations included that asking more people would make the results more representative and asking more questions or asking more open ended questions would mean that there would be more information to analyse.

Question 18

This question considered the advantages and disadvantages of nuclear power for generating electricity for a country. This question was not answered particularly well and some candidates incorrectly referred back to the questionnaires in the investigation. Candidates were more aware of disadvantages rather than advantages. Good candidates included advantages such as nuclear power does not contribute to global warming and a lot of energy can be produced from a small amount of uranium. Correct disadvantages included the problem of disposing radioactive waste and the fact that uranium is non-renewable.