GEOGRAPHY

Paper 0460/03
Coursework

Key messages

Once again there was an increased entry for the June 2017 session compared with the entry for the Coursework Paper in June 2016, with this increase coming equally from overseas and UK Centres. Almost all centres had submitted proposals in advance which were approved by CIE. Therefore, almost all candidates' work followed the route to enquiry as outlined on page 28 of the syllabus document. Furthermore, all markers applied the generic mark scheme found on page 35 of the syllabus document and thus in most cases the moderation process was easy to undertake. The focus of much of the report is inevitably on the rather limited occasions where things did not go as smoothly as they should. Although this report refers to the performance of centres in the June 2017 examination, comments are equally applicable for centres that make their entries for the first time in November 2017 or during 2018.

For those centres who have yet to submit a proposal, it is highly recommended. Providing the proposal falls within the scope of the Syllabus at an appropriate level for the age of the candidates undertaking IGCSE Geography, then approval is always given. Advice is also offered which is based on good practice and can lead to candidates accessing the higher grades. Similarly, suggested approaches that may hinder a candidate can be commented upon at the proposal stage.

General comments

Moderators reported that they were pleased to see an increasingly wide range of fieldwork experiences in a variety of interesting places and teaching staff should be congratulated for their efforts in taking students out of the classroom. Indeed, the resulting studies were both informative and enjoyable to read. Human geography studies still outnumber physical ones, but there is no evidence that better marks are scored on one or the other. By and large most studies followed a logical sequence of enquiry and maintained a rigour and clear sense of purpose throughout with the issue under investigation firmly rooted in Geography. In most cases centres have had just the right amount of input, allowing students to express themselves and demonstrate their understanding in an individual way. A small number of centres submitted studies which could be very predictable, with all candidates for instance, using the same presentation techniques.

Once again the level of the work undertaken was appropriate for the age group with a good balance between the assessment criteria achieved. However, there is still a tendency for some introductions to be too long and this is often at the expense of the analysis and conclusion/evaluation sections. The majority of studies adhered to the work limit. There are still one or two centres from which studies do not adhere to the word limit and these have been noted by CIE. At present, there is no penalty for exceeding the word limit, but this is under review, and there is no guarantee that a scheme of applying penalties may not be introduced in future sessions. Such overlength studies often contain too many hypotheses, none of which are analysed in any great depth or the study loses focus on the issue under investigation. It is clear that candidates need to be more selective and this applies particularly to background information and geographical theory but to the description of data collection techniques as well.

Comments overall

Although moderators reported that they had to adjust marks in only a relatively small number of centres, there were a few more outside the tolerance than in the last June session. Most often it was marks over 50, which had to be adjusted most substantially, with either or a combination of the knowledge and understanding, organisation and presentation and analysis sections usually losing marks. It must be noted that the task of moderation was made easier by the fact that in almost every case the order of the candidates was precisely correct.

There was an increase in numbers of annotations on the scripts using terms from the generic mark scheme in order to justify where marks were awarded. All moderators have commented on how helpful this is and it is hoped that all centres will adopt such a policy. This is particularly useful when there are a large number of candidates and thus, several markers in any one centre. It is also advisable that an internal moderation is carried out at all centres. Where this is the case, it has been carried out conscientiously and adjustments made by the centre are absolutely clear. However, in some instances, an adjustment has been made to the overall total for a study, but it is not clear to which of the assessment criteria the change applies. It would be useful if this could be indicated on the Individual Candidate Record Card.

Knowledge and understanding was overmarked by some centres. It should be noted that this criteria does not just apply to the introduction. Markers should consider if the geographical knowledge stated and the understanding shown in the introduction is applied in the analysis and conclusion/evaluation sections. High level responses clearly linked the geographical theory to the aims of their study and these links formed a clear focus. In addition, all hypotheses were well justified with comment on the expected outcomes. However, there is still a tendency for some candidates to provide too much theory, for example on rivers, sometimes with a series of terms with their definitions, the latter being barely mentioned in the rest of the study. Although hypotheses are justified, the individual locations for fieldwork, and usually chosen by the centre, are not. The need to locate these sample points is important. It is extremely difficult to relate findings to urban models for example, without a sense of place. The best studies were those that chose only two or at most, three hypotheses. These were then dealt with in depth and clearly related only to theory that is relevant.

As in the past, candidates tended to score well in the *Observation and collection of data* criterion and this was marked accurately. Most centres have treated data collection as a collaborative effort in which candidates seem to enjoy taking part as some stated in their evaluation. By and large this is well planned, well executed and a large amount of worthwhile data is collected, from which candidates can extract only data which is relevant to their hypotheses. Where some parts of the data collection did not go so well, a pilot study may have been beneficial, although it is realised that the constraints of the timetable at many schools may not allow this. Those who were expected to collect data on a given topic on their own tended not to do so well. This is particularly the case when the data collection entails a questionnaire. Too few questionnaires are collected and this not does lend itself to statistical analysis or the drawing of reliable conclusions. River studies remain very popular and can yield a lot of worthwhile data. However, there are still one or two centres which choose too few sites, for example just two. Candidates then tend to do too many hypotheses since they cannot go into any depth on any one, due to the lack of data. It is clear that safety of participants is of absolute importance, but if enough sites cannot be accessed in order to achieve reliable trends, then perhaps an alternative river should be chosen. The data collection techniques are increasingly written up in tabular form. This gives the candidates the opportunity to reflect on the relative merits of these techniques. Such evaluation gives clear evidence from which to draw when suggesting possible improvements to their work. Such tables are to be encouraged. However, it is important that candidates realise that such extensive text in tables should not be used as a way to get round the word limit.

Most studies were well organised with a logical order based on the enquiry method. This, in most cases included a table of contents and page numbering. Moderators were keen to report a variety of techniques used appropriately by the candidates and these included radar graphs, choropleths, pictograms, desire line maps as well as the chi-squared coefficient and spearman's rank correlation. Other candidates over relied on bar and line graphs and pie charts. Nevertheless, simple bar charts can enhance the spatial element of a study, if they are located on a base map and thus becomes a more complex technique. Some centres did this well and used located photographs or river cross sections. Photographs in the best studies were carefully selected with a purpose in mind and annotated accordingly. These too would count as a more complex technique, something which would be expected for a candidate to achieve level 3 in *Organisation and presentation.*

This tended to be overmarked by some markers especially in level 3, but generally candidates did well in this section. Nevertheless moderators did report many graphs with unlabelled axes and an absence of scales and compass points on maps. This was particularly the case with internet sourced maps. An increase in pre-drawn graphs, maps and diagrams which are then scanned into the study has been noticed. In many cases these lack clarity and such elements as scales are very difficult to read.

The *analysis* remains the weakest area of study for many candidates. Most better studies integrated their graphs with their analysis and it is felt that candidates stood a much better chance of successfully drawing on the data to address their hypotheses or sub-questions. These studies also used the data to clearly identify trends and anomalies, as well as giving clear and feasible explanations based on theory outlined in the introduction. Some reports on the results of a questionnaire/survey however, lacked or only implied reference to their hypotheses. In some cases purely descriptive accounts of the data were pitched by some markers at level 3, which is clearly too high. In addition, too often, explanations were speculative and not based on theory. Spearman's rank correlation was generally used well to back up trends identified from the data, although not all who used it went on to use tables of significance.

Although individual conclusions can appear in the analysis section, many conclusion sections were rather short. Generally findings were linked back to the hypotheses well with the best conclusions stating the extent to which the candidate agreed or disagreed. This was then backed up with key (usually numerical) evidence and reference to how it did or did not fit with theory. The evaluation was considered by the moderators to be a relative strength with weaknesses stated and backed up with some appropriate suggestions for improvements. Some better responses also stated some ideas for how their study could be extended. The *conclusion and evaluation* criteria was generally assessed accurately by markers.

Most of the paperwork was completed accurately and despatched efficiently to CIE, for which the Moderators are very grateful. In almost all cases, the samples sent were absolutely appropriate, representing a very fair cross-section of the marks awarded, thus, saving the Moderators time by not having to request more. However, there still continues to be instances where errors in the paperwork have been reported. These usually took place in one of the following instances;

Transcription errors from the Coursework Assessment Summary forms to the MS1 forms. Occasionally, this may occur where an internal moderation has taken place, and the candidate's original marks have been entered instead of the changed mark.
Where the addition of the assessment criteria marks on the individual candidate record card was incorrect and this was subsequently transferred to the Coursework Assessment Summary Form and then the MS1's. This was the most common error.

Moderators have corrected these errors whenever they have found them but there is no guarantee that all errors will be discovered, especially for candidates whose work has not been submitted in the sample sent to CIE. It would be a good idea if all centres could have their candidate's marks double checked.

GEOGRAPHY

Paper 0460/11
Paper 11

Key Messages

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

ensure that the examination rubric is followed correctly, answering 3 questions, one from each section.
select the three questions with care. Read them all through and study the resources provided with them before making a choice.
answer all parts of the three chosen questions and ensure that sub-sections are not missed.
read the questions carefully. If it helps to do so, underline command words and words which indicate the context of the question.
respond in the correct way to command words used in questions, in particular 'identify', 'describe', 'explain' and 'compare'.
identify the correct focus specified in the question stem – e.g. causes or effects/impacts, natural population growth or migration, problems or how they are being managed..
ensure that they respond correctly to key words and learn the meanings of geographical words and phrases in order to be able to define and accurately use geographical terminology. When defining words or phrases, candidates should not simply repeat a word or words as part of their definition.
understand the difference between describing a distribution from a map by referring to general patterns and describing the location of a feature or place by giving distances and directions from named places.
use the mark allocations, information about the number of points to be made and the amount of answer space provided in the question and answer booklet as a guide to the length of answer required.
write as clearly and precisely as possible avoiding vague, general statements.
write in full wherever possible, especially in the final two parts of each question, ensuring that ideas are developed with the correct focus.
perform basic skills using graphs, photographs and maps of various types, referring to them in an appropriate way to support ideas rather than directly lifting material from them without any interpretation.
ensure that accurate statistics are given where required to support an answer based on a graph.
practise the skill of describing the features or characteristics of a landscape, landform, activity or building shown on a photograph.
express themselves as clearly as possible avoiding vague, general statements.
have a range of case studies so that appropriate ones can be chosen for the topics tested.
ensure that each case study used is at the correct scale. The syllabus identifies the scale required for each case study.
avoid writing a long introduction to any question (e.g. to provide place specific information) at the expense of answering it in detail.
develop points and link ideas wherever possible in case studies and include place detail.
ensure that comparative language and phrases are used where a question requires comparison.
ensure knowledge of appropriate physical processes and an ability to explain the formation of features using key terms and clearly sequenced ideas.
write in detail and develop ideas in **(b)(ii)** questions (worth 5 marks), where development marks are available.
when using the extra pages at the back of the question and answer booklet indicate that the answer is continued and clearly show the number of the question on the extra page. Continue answers on the continuation pages at the back of the booklet rather than somewhere else inside the answer booklet.

General Comments

Most candidates were able to make a genuine attempt at their chosen questions. However, weaker candidates found it difficult to interpret questions and write relevant answers. Candidates seemed to have sufficient time to complete the paper.

Most candidates followed the rubric. However a few rubric errors were still seen and teachers should ensure that candidates know that they have to answer only one question from each section.

The presentation of answers from candidates was variable, though almost all were legible.

Questions 1, 4 and **6** were the most popular questions within each section. There were good answers seen to all questions, including those requiring extended writing. An area for improvement for candidates would be maximizing the marks scored on the part c questions. The part **(c)** questions that were answered the most successfully were the case studies about low population growth rates, strategies to improve squatter settlements and the location of a factory or industrial zone. High quality answers in these case studies were characterised by developed ideas with some place detail. Weaker responses tended to be generic developments of ideas with little place detail to support them, whilst others just used simple, brief statements. In some cases a significant amount of detail included by candidates was not relevant to the question being asked, especially where long introductions occupied much of the answer space.

Case studies require place specific information to allow access to the highest level. This requirement can vary between questions – a country **(Question 1)** or an urban area **(Question 2)** or a river **(Question4).** Some candidates do not carefully consider their choice, limiting their mark by inappropriate choices, for example, choosing a country rather than an urban area or vice versa. Where an `area` is required, (such as in **Question 6**) choosing a country usually tends to be unacceptable as this is likely to be at too large a scale.

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 more popular than **Question 2** with a large number of candidates attempting this question.

(a) (i) This was well answered with the majority of candidates identifying the 15–19 age group. There were some incorrect references made to "economically active". There were also a few omissions and candidates need to ensure that they answer all parts of each questions.

(ii) In general, this question was not well answered. Responses did not show that candidates fully understood the question or read it carefully enough and their answers did not focus on the shape of the pyramids and/or compare the two pyramids.

(iii) This was very well answered on the whole with candidates showing good knowledge of the reasons for high numbers of young dependents in LEDCs. There were some irrelevant references to old dependents.

(iv) This was generally well answered and good knowledge was shown of the reasons for a large number of old dependents in MEDCs. There were some irrelevant references to birth rates.

(b) (i) There were mixed responses to this question. Most candidates were able to gain credit for giving comparative statistics for Europe and South America. Stronger candidates were able to recognise the fact that there was less increase in Europe than South America. The idea that both would increase was rarely seen.

(ii) This was well answered. The best answers showed a wide range of responses and candidates had clearly been well prepared for this type of question. Most candidates had valid ideas and the best answers gave perceptive responses, clearly expressed, with good examples of development.

(c) This was one of the better answered case study questions and the full range of marks was seen. There were some very good answers that developed a full range of ideas with appropriate place specific information. However in contrast there were a significant number where points were undeveloped and simple ideas were given which only obtained credit at level 1 (maximum 3 marks). Some answers made incorrect references to migration which was not creditworthy as the focus of the question was on natural population growth.

Question 2

Although fewer candidates answered this question, the overall performance was slightly better than that on **Question 1**.

(a) (i) This was accurately answered and very few errors were seen.

(ii) This was fairly well answered with most candidates able to identify the relationship shown by the scatter graph, however only the strongest candidates went on to comment on the extent or strength of the relationship to access the second mark.

(iii) There were some appropriate responses here relating to traffic, noise, crime and air pollution. However, many candidates did not seem familiar with the reasons for urban to rural migration in MEDCs, with some incorrect references to ideas relating to jobs and the cost of land.

(iv) This was better answered and candidates seemed more familiar with rural to urban migration in an LEDC context. Most candidates were able to give some valid ideas here and gained credit for these.

(b) (i) Generally this was well answered. Most candidates understood that people were unable to afford houses and made reference to the large population. Candidates should avoid simply lifting text from the boxes and should write using their own words when the question asks them to do so.

(ii) This was well answered and candidates showed good knowledge of the problems of living in squatter settlements. There were some excellent responses showing a wide range of valid issues. Whilst all but the weakest candidates achieved success on this question some missed some opportunities to elaborate on their ideas and gain development marks.

(c) Most candidates understood that they had to write about solutions to problems and therefore scored some marks. However, ideas were not always sufficiently developed to access level 2 and quite a lot of simple generic ideas (e.g. build more houses, employ more police) were seen. There were a few excellent responses with good knowledge of schemes expressed in clearly developed terms with accurate place specific information. Common examples included Rio and Mumbai with some candidates showing good knowledge of the self-help principle.

Question 3

This question was answered by a significant number of candidates but was not as popular as **Question 4**.

(a) (i) The vast majority of candidates correctly identified the arch. A small minority of candidates did not answer the question.

(ii) Answers to this question were variable and the skill of describing a photograph is something that requires further practice. Candidates should be able to access these marks and regular embedding of activities within lessons and revision activities will help to develop this skill. Descriptions were sometimes weak and lacked the use of geographical terminology. Sometimes candidates explained the formation of this feature rather than describing it, reinforcing the need for them to focus on the correct meaning of the command word.

(iii) This question was generally well answered with many candidates correctly explaining arch formation by reference to the development of back to back caves. Well prepared candidates knew the sequence of the formation of the arch and were able to access all of the three marks here. Many were familiar with named processes of erosion.

(iv) The performance of candidates on this question was generally good and many were able to suggest how the feature would change in the future. Most common answers included the collapse

of the arch, the formation of a stack and further erosion into a stump. Only the best answers made reference to the roof of the arch collapsing under its own weight. Some candidates simply repeated their answer from the previous question without making the link to how the feature would be likely to change.

(b) (i) Answers to this question were variable. Most candidates correctly identified one problem and most answers typically included a reference to property collapse or destruction. Candidates need to give ideas based on the photograph as a stimulus. There were some incorrect references to farmland, tourism and cliffs collapsing without a reference to people.

(ii) There were some good responses here and most candidates were able to identify some valid points. Most common responses included a reference to fishing; tourism and trade. The question discriminated well and most able candidates were able to develop ideas and access full marks. However, some candidates performed less well here and there were some incorrect references made to fertile land/farmland.

(c) Most candidates who wrote about a spit were able to make reference to ideas relating to deposition; longshore drift and constructive waves. The vast majority of candidates provided a labelled diagram, though the quality varied immensely. Only a few candidates made sufficient developed statements to achieve full level 2 marks and many responses showed a lack of detailed knowledge of the process of the formation of a spit. Full mark answers therefore were rare. Only the best answers included accurate use of key terminology. A number of candidates did not know what a spit was and wrote about other features such as sand dunes and occasionally headlands. Candidates generally performed less well on this question than the other part **(c)** questions and there were some candidates who did not attempt the question at all.

Question 4

This question was more popular than **Question 3** and candidates who answered this question performed slightly better.

(a) (i) The vast majority of candidates correctly identified a waterfall and answered this question correctly.

(ii) Candidates need to develop the skill of describing a feature from a photograph. Many candidates focused on peripheral ideas such as vegetation or loose rocks rather than identifying the features of the waterfall.

(iii) There were mixed responses to this question. Some candidates were able to write an accurate sequence to show the formation of a waterfall. Other answers were a little confused and the sequence was not clear. A significant number of answers would have been improved by clear differentiation between hard and soft rock in relation to the processes.

(iv) This question asked candidates to explain how the feature would change in the future. Some candidates repeated their answer to the previous question. The best answers appreciated the impact of further erosion and went on to explain how there would be further collapse, retreat and formation of a gorge. These were the most impressive answers. There were some answers that did not seem to relate to the question with references to pollution and global warming.

(b) (i) The vast majority of candidates scored well on this question. They made good use of the map and the key to identify the impacts of flooding.

(ii) This question was well answered and candidates were able to access marks from the mark scheme by reference to ideas such as water supply, fishing, agriculture and transport. The question discriminated well with some excellent top end answers seen where candidates had clearly prepared well for this question.

(c) There were mixed responses to this question and many candidates wrote about the impacts of flooding rather than the causes. Candidates should be encouraged to underline the key content of the question so that their answer is appropriately focused. There was the full range of answers seen ranging from simplistic statements such as 'heavy rain' to well-developed case studies with a full range of valid ideas supported by place specific detail. The River Ganges and Mississippi were commonly seen case studies and both offered scope for well-developed answers. Many used local examples, and whilst this is to be encouraged, some of these answers seemed to lack specific detail.

Question 5

This question was answered by a significant number of candidates but was not as popular as **Question 6**.

(a) (i) This question was very well answered and mostly correct.

(ii) This question was very well answered with most candidates gaining full credit.

(iii) This question was very well answered and candidates were able to identify the changes from the graph. Many candidates realised the need to describe the changes and not just quote figures. Only a few referred to the current situation without describing the change.

(iv) Most candidates gained credit for the idea that renewable sources won't run out and also cause less air pollution. There were lots of good answers seen although some candidates did not elaborate as required with answers such as "pollution" or "cleaner" being too vague for credit to be awarded.

(b) (i) This question was generally not well answered with few responses being giving full credit. The skill of describing a distribution is something that would benefit from further practice. The most typical credit was for a reference to proximity to rivers. Less common were comments on the widespread nature of the distribution. A common misconception was that the power stations were found close to cities rather than the opposite. Sometimes, answers were based on previous knowledge rather than making good use of the map to describe the distribution shown.

(ii) This was generally well answered with most candidates gaining at least 2 or 3 marks. The question discriminated well and there were some very well balanced arguments with good development of ideas.

(c) The performance on this question was the best of the part **(c)** questions. The most common case studies seen were Derby (Toyota); Bangalore, the M4 Corridor and Silicon Valley. For these case studies, candidates had scope to develop their ideas well and include accurate place specific information to support their answer. Most candidates choose an appropriate scale although there were some answers that made an incorrect choice of an entire country. The vast majority of answers focused on manufacturing industry although some answers relating to mining and power generation were seen. Weaker answers were characterised by simple statements relating to labour, transport and land.

Question 6

This was more popular than **Question 5**. On the whole, candidates performed slightly better on **Question 5** than **Question 6**.

(a) (i) This was generally answered well but there were a surprising number of references to the quaternary sector.

(ii) A significant number of candidates got both correct but there were errors and not all candidates seemed to understand the terms used on the diagram.

(iii) This was well answered with most candidates able to make valid points about the impact of tourism on people. Most common answers related to noise, litter and traffic. There were some incorrect references to environmental issues seen where candidates had missed the reference to people in the question.

(iv) This was well answered and candidates were able to identify a landscape and then go on to give a suitable attraction or activity linked to it. Beaches, forests and mountains were common correct responses. Some weaker candidates wrongly inserted types of tourism from Figure 8 rather than identifying a type of landscape.

(b) (i) Many candidates made good use of the photograph as a source of information and scored well. Weaker responses tended to make generic points about how tourism creates employment rather than basing their answer on photographic evidence.

(ii) The question discriminated well and the best answers showed well developed ideas relating to deforestation, air pollution, and habitat loss. The best answers clearly showed the link to the environment. The question was not always well answered where there were incorrect references to people rather than environment or where candidates had not appreciated the need to write about impacts at a local scale.

(c) Most candidates recognised that the answer focused on the management of tourism but not all appreciated the meaning of 'sustainable'. There were some incorrect references to the impact of tourism or why the chosen area attracts tourism without a focus on management. However there were some very well developed answers seen and some excellent Galapagos case studies, which provided scope for clearly explained points with appropriate place specific detail.

GEOGRAPHY

Paper 0460/12
Paper 12

Key Messages:

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

ensure that the examination rubric is followed correctly, answering 3 questions, one from each section.
select the three questions with care. Read them all through and study the resources provided with them before making a choice.
answer all parts of the three chosen questions and ensure that sub-sections are not missed.
read the questions carefully. If it helps to do so, underline command words and words which indicate the context of the question.
respond in the correct way to command words used in questions, in particular 'identify', 'describe', 'explain' and 'compare'.
identify the correct focus specified in the question stem, e.g. causes or effects/impacts, natural population growth or migration, problems or how they are being managed..
ensure that they respond correctly to key words and learn the meanings of geographical words and phrases in order to be able to define and accurately use geographical terminology. When defining words or phrases, candidates should not simply repeat a word or words as part of their definition.
understand the difference between describing a distribution from a map by referring to general patterns and describing the location of a feature or place by giving distances and directions from named places.
use the mark allocations, information about the number of points to be made and the amount of answer space provided in the question and answer booklet as a guide to the length of answer required.
write as clearly and precisely as possible avoiding vague, general statements.
write in full wherever possible, especially in the final two parts of each question, ensuring that ideas are developed with the correct focus.
perform basic skills using graphs, photographs and maps of various types, referring to them in an appropriate way to support ideas rather than directly lifting material from them without any interpretation.
ensure that accurate statistics are given where required to support an answer based on a graph.
practise the skill of describing the features or characteristics of a landscape, landform, activity or building shown on a photograph.
express themselves as clearly as possible avoiding vague, general statements.
have a range of case studies so that appropriate ones can be chosen for the topics tested.
ensure that each case study used is at the correct scale. The syllabus identifies the scale required for each case study.
avoid writing a long introduction to any question (e.g. to provide place specific information) at the expense of answering it in detail.
develop points and link ideas wherever possible in case studies and include place detail.
ensure that comparative language and phrases are used where a question requires comparison.
ensure knowledge of appropriate physical processes and an ability to explain the formation of features using key terms and clearly sequenced ideas.
write in detail and develop ideas in **(b)(ii)** questions (worth 5 marks), where development marks are available.
when using the extra pages at the back of the question and answer booklet indicate that the answer is continued and clearly show the number of the question on the extra page. Continue answers on the continuation pages at the back of the booklet rather than somewhere else inside the answer booklet.

General Comments:

Most candidates were able to make a genuine attempt at their chosen questions. However, weaker candidates found it difficult to interpret questions and write relevant answers. Candidates seemed to have sufficient time to complete the paper.

Most candidates followed the rubric. However a few rubric errors were still seen and teachers should ensure that candidates know that they have to answer only one question from each section.

The presentation of answers from candidates was variable, though almost all were legible.

Questions 1, **3** and **6** were the most popular questions within each section. There were good answers seen to all questions, including those requiring extended writing. An area for improvement for candidates would be maximizing the marks scored on the part **(c)** questions. The part **(c)** questions that were answered the most successfully were the case studies about problems caused by a large percentage of dependents, the opportunities of living close to a river and the causes of an earthquake. High quality answers in these case studies were characterised by developed ideas with some place detail. Weaker responses tended to be generic developments of ideas with little place detail to support them, whilst others just used simple, brief statements. In some cases a significant amount of detail included by candidates was not relevant to the question being asked, especially where long introductions occupied much of the answer space.

Case studies require place specific information to allow access to the highest level. This requirement can vary between questions – a country (**Question 1**) or an urban area (**Question 2**) or a river (**Question 4**). Some candidates do not carefully consider their choice, limiting their mark by inappropriate choices, for example, choosing a country rather than an urban area or vice versa. Where an 'area' is required, (such as in **Questions 3**, **5** and **6**) choosing a country usually tends to be unacceptable as this is likely to be at too large a scale.

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 much more popular than **Question 2** with a large number of candidates attempting this question.

(a) (i) Most candidates estimated the correct number of young dependents, though some did not add up the bars to obtain the total number.

(a) (ii) This was well answered. Most candidates recognised the decrease and increase which is likely to occur by 2025 in young and old dependents respectively. Some referred to statistics rather than acting on the command word 'describe'.

(a) (iii) This was generally well answered with common correct ideas being about high birth rates, high infant mortality, education about and availability of family planning, tradition and the need to look after parents. Whilst most candidates scored something a number of weaker candidates made vague, general statements (e.g. poor healthcare, lack of education) and some focused on the elderly rather than the young dependents.

(a) (iv) Good answers included comparison and many scored one mark for each section of the structure. Few scored a fourth mark for more detail. Incorrect answers did not make the necessary comparison or answered in terms of shape of the pyramid rather than the actual population structure as required. Many candidates added explanations which were not required.

(b) (i) Many candidates gained full credit for this question, helped by the three time periods being separated. Some candidates failed to score because they did not answer descriptively but used statistics.

(b) (ii) There were many very good answers which gave reasons why the number of old dependents is increasing. The most common reasons were an increasing life expectancy, due to improvements in healthcare, treatment of disease, sanitation, food supply, pension provision and specific care for

the elderly. Whilst reference to decreasing birth rates was relevant candidates could only score one mark for this, therefore detailed reasoning was not valid to the answer as the focus was clearly on old dependents rather than young ones.

(b) (iii) Again there were many good answers which focused on increased taxes, failing economy, pensions, ageing population and less working population. Some candidates made the error of focusing on why birth rates were low.

(c) There were some very good answers to this question. Common successful examples were Japan and the UK, though there were many other countries chosen. Although a country was named by most candidates many ideas were generic and there was little place detail. Some weaker candidates focused generally on overpopulation which was not acceptable. Usually the case studies focusing on old dependents were most successful as answers which concentrated on young dependents often only gained credit for developed ideas about schools. Whilst many candidates showed a good understanding of the problems a common error was to select China, focusing on the one child policy with far too much superfluous detail and only a brief reference to problems of increasing young or old dependents. Some candidates also referred to both young and old dependents but never fully described the problems.

Question 2

Fewer candidates answered this question and the overall performance was not as impressive as that on **Question 1**.

(a) (i) Most candidates identified housing as the main land use.

(a) (ii) This was poorly answered by many candidates who focused incorrectly on accessibility to the CBD rather than referring to the cost of land and pressure on space.

(a) (iii) This was generally well answered with most candidates making valid points about the distribution, especially references to proximity to the River Orwell, roads and railway lines. Some candidates added unnecessary explanation which they then repeated in the following question.

(a) (iv) This question discriminated well with more perceptive candidates referring to a variety of ideas. Weaker candidates focused on the CBD, assuming wrongly that the market would need to be local. Although many suggested that various methods of transport were important, few explained the reasons for this.

(b) (i) The question asked for ‘land uses’ to be identified and a significant number of candidates did not include a land use in their answer referring instead to activities.

(b) (ii) This was a good discriminating question. Better candidates showed good understanding by referring to large space, ease of access, low cost land and proximity customers. Some also explained that the airport or shopping centre could be in the rural-urban fringe because of noise or air pollution and many candidates developed their ideas for further credit. Some weaker candidates put an incorrect focus on the activities rather than their location or went through each land use and gave brief and repetitive reasons for the three land uses being located in the rural-urban fringe.

(c) Whilst some good responses were seen many were not developed answers and few contained place specific information. Many candidates wrote generally about the problems caused by urban growth or about ‘overpopulation’ without recognising the need to focus on urban sprawl. The best answers were about the impacts on the natural environment on the areas in the rural-urban fringe, or about problems caused by the daily movement of people over large distances, such as traffic congestion, many developing their ideas by reference to noise and/or air pollution.

Question 3

This question was more popular than **Question 4** and candidates who answered this question performed slightly better.

(a) (i) Many candidates identified the shield volcano.

(a) (ii) The accuracy of this answer varied and many candidates were unable to correctly identify both features from the diagram. The magma chamber was sometimes referred to as just 'magma' and the crater was referred to as 'mouth' or confused with the main vent.

(a) (iii) This was generally well answered and candidates knew the differences between the two types of volcano. Typical answers included references to steep slopes, higher, viscous lava, ash and narrower base. Common errors were to refer to the type of plate boundary or the frequency of eruption. Successful candidates made good use of Fig. 4 to generate their ideas.

(a) (iv) This was a good discriminator, which depended on whether the candidate understood 'distribution'. Some impressive answers were seen, equally some weak ones with vague references to continents and land/seas. Many candidates correctly identified the link between location and plate boundaries, and some candidates also mentioned hotspots. A common error that was that some candidates explained rather than described the global distribution of volcanoes and/or included incorrect references to conservative plate boundaries.

(b) (i) Many candidates only gained credit for identifying an effect on the economy. Many candidates did not understand the term 'natural environment' so wrote about farming, or 'infrastructure' so wrote about buildings.

(b) (ii) This was a topic well-known to many candidates who scored well. Some responses gave detailed ideas about 'earthquake-proof' buildings, developing ideas well for further credit. In addition many referred to earthquake drills, education about how to react during an earthquake, evacuation routes and trained rescue teams. There are still significant numbers of candidates who incorrectly think that an earthquake can be predicted with certainty, enabling the evacuation of the entire population.

(c) This question discriminated well and there were a number of very good answers where candidates chose an appropriate example (e.g. Kobe, Haiti, Sendai), named the correct plates which interacted and clearly explained the causes of their chosen earthquake. Such candidates developed ideas about convection currents, relative plate movement, friction, pressure build up and release in the correct sequence, sometimes using appropriate and sophisticated terminology. In contrast many did not score marks because they only wrote about effects of an earthquake. Some candidates knew the sequence of processes but referred to incorrect plates or plate movement or expressed ideas in simplistic terms (e.g. 'plates bump into each other'). Many candidates used examples taken from Japan, however the country name alone was insufficient to locate the case study so answers were then restricted to 5 marks maximum. When the country is small (e.g. Haiti) this is acceptable.

Question 4

This question was answered by a significant number of candidates but was not as popular as **Question 4**.

(a) (i) This was a good discriminator.

(a) (ii) Answers contained a mixture of right and wrong answers to both parts of the question, suggesting that not all candidates are familiar with hydrographs.

(a) (iii) Whilst there were some excellent responses many responses did not show a clear understanding of what was required by the question with many covering why rivers floods from the point of view of the river being unable to hold so much water. The best candidates wrote about overland flow, channel flow or groundwater flow.

(a) (iv) There were many good answers which began with the idea that the river would flow faster and therefore with more energy. They then went on to link this to more erosion and transportation, often including a reference to an appropriate named process or processes.

(b) (i) Explanations varied in quality and accuracy. Weaker responses showed little understanding of the terms and gave inaccurate answers. Common errors included responses such as 'land where the river drains', 'where water is stored' and 'streams going off the main river'.

(b) (ii) This was another good discriminating question. The best answers focused on problems for the natural environment, notably habitat loss, impact on the food chain, animal deaths and soil erosion with excellent examples of good development seen. Answers about human problems usually began with flooding and developed the idea of how it impacted on homes or people's lives. Answers about climate change and global warming were not appropriate as the question asked about impacts 'in Oregon'.

(c) Many candidates chose the Nile, Ganges or Amazon as their case study and the best answers included benefits for farming, fishing, trade and tourism. The best answers seen contained place detail about farming or tourism and trade, some with statistics and place detail. Weaker candidates tended to write simplistic generic lists. Some used local examples, and whilst this is to be encouraged, some of these answers lacked specific detail.

Question 5

This question was answered by a significant number of candidates but was not as popular as **Question 6**.

(a) (i) There were many acceptable answers, however some candidates were too vague in their choice of farming type, giving answers which could either be subsistence or commercial (e.g. arable, intensive).

(a) (ii) Many candidates correctly identified the relationship shown on the graph and a significant proportion also gave details contrasting countries, such as Mali and the U.K, to illustrate the relationship. Some answers from weaker candidates were expressed in such a way that they did not understand what the variables plotted actually represented.

(a) (iii) Candidates covered all acceptable answers but few gained full credit. Answers were often too vague and did not link the factor to a specific crop or type of farming.

(a) (iv) As in the previous question there were various ideas included, with different levels of sophistication and understanding. The most common correct ones were deforestation, soil exhaustion and unprotected soil. Some candidates failed to use the correct terms (e.g. 'overfarming' was often referred to) and relatively few referred to the simple ideas of soil being 'washed away by rain' or 'being blown away by the wind when dry'. Many candidates also wrongly linked use of fertilisers to soil erosion.

(b) (i) Many candidates answered well and recognised the two comparisons which were required. Better candidates gave accurate figures to support their comparison.

(b) (ii) Many strategies were suggested usually beginning with emergency aid. The question discriminated well and good candidates tended to explore a wide range of strategies to increase food availability. They showed good knowledge of strategies to increase production and had been prepared well for this type of question. A small minority made a reference to making farming more intensive without any elaboration as to how this would be achieved. Some candidates suggested 'education to improve farming' but did not specify what the education would focus on.

(c) Many candidates did not name an agricultural area, just naming an entire country which was not precise enough. Such answers were awarded a maximum of 5 marks. Too many descriptions, even from stronger candidates, were simplistic and most candidates, despite listing many inputs, processes and outputs, did not develop their ideas. The best answers included details of rainfall, temperature, soil type or irrigation methods or provided accurate statistics relating to inputs or outputs.

Question 6

This was more popular than **Question 5** yet overall performance on this pair of questions was almost identical.

(a) (i) Many candidates correctly chose 'secondary' but a significant minority chose 'primary' or 'tertiary'.

(a) (ii) The question discriminated well. Simple correct ideas about the buildings being tall and cylindrical were suggested by many candidates, but weaker answers focused on speculating what their use was or described them as 'big'.

(a) (iii) This was a challenging question and a good discriminator. Many responses did not show an understanding of what was meant by political factors, however the best answers showed excellent understanding in referring to issues such as tax incentives, pollution legislation, and, most frequently, political stability.

(a) (iv) The question discriminated well. Many candidates did give two factors and explained why they influenced industrial location. Weaker answers failed to explain the importance of the factors. A common weakness was to refer to 'transport' without specifying a type of transport.

(b) (i) Many candidates correctly identified three problems from the passage. Some weaker candidates lost marks by not elaborating about how 'air pollution' or 'contaminated water' cause problems for people.

(b) (ii) This question allowed good discrimination. It was answered well by many candidates who referred to the expense of any solution, the money brought into the country and potential corruption of decision makers, plus the jobs created which might be lost if the transnational company pulled out of the country as a result of legislation. Some answers were simplistic yet more perceptive candidates developed these ideas, for example by referring to the multiplier effect.

(c) Most candidates identified physical and human landscapes which attracted tourists but many found difficulty in expanding their ideas to explain why these landscapes attract tourists. Thus most answers scored marks (frequently level 1) but few gained full credit. There were notable exceptions of examples which candidates had clearly studied in detail, including local examples, which incorporated good place detail. Some candidates named a country, such as Kenya, and then took examples from different parts of the country which restricted their final mark.

GEOGRAPHY

Paper 0460/13
Paper 13

Key Messages

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

ensure that the examination rubric is followed correctly, answering 3 questions, one from each section.
select the three questions with care. Read them all through and study the resources provided with them before making a choice.
answer all parts of the three chosen questions and ensure that sub-sections are not missed.
read the questions carefully. If it helps to do so, underline command words and words which indicate the context of the question.
respond in the correct way to command words used in questions, in particular 'identify', 'describe', 'explain' and 'compare'.
identify the correct focus specified in the question stem – e.g. causes or effects/impacts, natural population growth or migration, problems or how they are being managed.
ensure that they respond correctly to key words and learn the meanings of geographical words and phrases in order to be able to define and accurately use geographical terminology. When defining words or phrases, candidates should not simply repeat a word or words as part of their definition.
understand the difference between describing a distribution from a map by referring to general patterns and describing the location of a feature or place by giving distances and directions from named places.
use the mark allocations, information about the number of points to be made and the amount of answer space provided in the question and answer booklet as a guide to the length of answer required.
write as clearly and precisely as possible avoiding vague, general statements.
write in full wherever possible, especially in the final two parts of each question, ensuring that ideas are developed with the correct focus.
perform basic skills using graphs, photographs and maps of various types, referring to them in an appropriate way to support ideas rather than directly lifting material from them without any interpretation.
ensure that accurate statistics are given where required to support an answer based on a graph.
practise the skill of describing the features or characteristics of a landscape, landform, activity or building shown on a photograph.
express themselves as clearly as possible avoiding vague, general statements.
have a range of case studies so that appropriate ones can be chosen for the topics tested.
ensure that each case study used is at the correct scale. The syllabus identifies the scale required for each case study.
avoid writing a long introduction to any question (e.g. to provide place specific information) at the expense of answering it in detail.
develop points and link ideas wherever possible in case studies and include place detail.
ensure knowledge of appropriate physical processes and an ability to explain the formation of features using key terms and clearly sequenced ideas.
ensure that comparative language and phrases are used where a question requires comparison.
write in detail and develop ideas in **(b)(ii)** questions (worth 5 marks), where development marks are available.
when using the extra pages at the back of the question and answer booklet indicate that the answer is continued and clearly show the number of the question on the extra page. Continue answers on the continuation pages at the back of the booklet rather than somewhere else inside the answer booklet.

General Comments

Most candidates were able to make a genuine attempt at their chosen questions. However, weaker candidates found it difficult to interpret questions and write relevant answers. Candidates seemed to have sufficient time to complete the paper.

Most candidates followed the rubric. However a few rubric errors were still seen and teachers should ensure that candidates know that they have to answer only one question from each section.

The presentation of answers from candidates was variable, though almost all were legible.

Questions 1, 3 and **6** were the most popular questions within each section. There were good answers seen to all questions, including those requiring extended writing, particularly the case studies on a population policy, impacts of an earthquake and the impacts of a transnational company. High quality answers in these case studies were characterised by developed ideas with some place detail. Weaker responses tended to be generic developments of ideas with little place detail to support them, whilst others just used simple, brief statements. In some cases a significant amount of detail included by candidates was not relevant to the question being asked, especially where long introductions occupied much of the answer space.

Case studies require place specific information to allow access to the highest level. This requirement can vary between questions – an urban area (**Q2**) or a country (**Q1**) or an earthquake in an area (**Q3**). Some candidates do not carefully consider their choice, limiting their mark by inappropriate choices, for example, choosing a country rather than an urban area or vice versa. Where an 'area' is required, (such as in **Q4** and **Q6**) choosing a country usually tends to be unacceptable as this is likely to be at too large a scale.

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

Comments on specific questions

Question 1

(a) (i) This was well answered. The focus of the question was on the difference between births and deaths.

(ii) This was very well answered and nearly all candidates were able to use the data provided to accurately calculate the natural population growth of New Zealand.

(iii) This was generally well answered with candidates able to give a range of reasons to explain population decline. The focus of this question was an MEDC so answers needed to relate to the given context. The focus of the question was also about reasons for a declining birth rate so some candidates lost marks through giving several references to reasons for high death rates.

(b) (i) This was generally well answered. Candidates were able to identify countries which had a child mortality rate of over 150. Candidates were also able to identify that many of these countries were in the centre of Africa. The best answers described the distribution using accurate geographical terms such as "unevenly distributed" or "mainly between the tropics". Some responses used inappropriate use of terms such as "above" and "below" to describe location with regards to lines of latitude. In general, describing a distribution is still an area where some candidates would benefit from further practice.

(ii) Most candidates understood the question and performed well. There were some excellent answers seen. Typical responses included references to food, water, healthcare and named diseases. "Education" on its own was not credited and this should have been linked to an idea of what the education is about – for example, "people are better educated about how to prevent disease". Very occasionally, there were some inappropriate references to high birth rates.

(iii) The full range of marks was seen for this question. Some responses did not show a complete understanding of the question and recognise the need to relate the high birth rate to the high child mortality rate. Typical answers seen included references to children being needed to work on the farm, or bring in income or replace children that die. These were entirely appropriate because they focused on the value of children. Development marks were available and, whilst some excellent development was seen, candidates should be reminded of the importance of including detail and developing ideas in **(b)(ii)** questions rather than just listing simple ideas.

(c) There was a range of case studies used but the most popular was China. This question was answered well and there were some good examples of development of aspects of the policy seen to access Level 2. The focus of the question was to describe the policy – some candidates, however, incorrectly focused on, or developed their answers in relation to, the impacts of the policy which were not relevant. In some cases, place specific information was lacking to access the full 7 marks.

Question 2

Very few candidates answered this question. Candidates in general did not perform as well on this question as they did if they answered Question 1.

(a) (i) This was generally well answered. There were some incorrect references to "town".

(ii) Most candidates, although not all, understood this question and, on the whole, it was well answered.

(iii) This question was not always well answered. Candidates did not always fully understand the question and focused on reasons for the original site of a settlement rather than on reasons for subsequent growth.

(b) (i) This question was very well answered with almost all candidates gaining full credit. Good use was made of the images.

(ii) This question was not well answered. Typical answers that received credit were for ideas relating to the fact that low order services are used by most people and used frequently. A small number of very good responses were seen that went beyond these ideas and made good use of geographical terminology such as "threshold population".

(iii) In general, candidates did not perform well on this question. The typical ideas that gained credit were for points relating to "large population" and being able to "make a profit". There were many incorrect references to the towns and cities being where the rich people lived or the idea that people in these settlements had high incomes.

(c) This question showed a range of marks. Most candidates understood that they had to write about what had caused the chosen problem although sometimes there were incorrect references to the impacts which were not creditworthy. Whilst there were some excellent, detailed responses some candidates were unable to develop their ideas and wrote only in simple and generic terms, with a lack of specific detail and place specific information. Such answers were only credited at level 1 (Maximum 3 marks).

Question 3

This was a popular question.

(a) (i) This was generally very well answered and candidates were aware of this key term although there were some incorrect references to "cone".

(ii) The accuracy of this answer varied and many candidates were unable to correctly identify both features from the diagram. The magma chamber was sometimes referred to as just "magma" and the crater was referred to as "mouth" or confused with the main vent.

(iii) This was generally well answered and candidates knew the differences between the two types of volcano. Typical answers included references to gentle slopes, lower, less viscous lava and wider base. Common errors were to refer to the type of plate boundary or the frequency of eruption. Successful candidates made good use of Figure 4 to generate their ideas.

(iv) This was generally well answered and there were some impressive answers seen. Most candidates correctly identified the link between location and plate boundaries although some of the locational evidence provided was a little vague. A common error that was seen was that some candidates explained rather than described the global distribution of volcanoes or included incorrect references to conservative plate boundaries and fault lines.

(b)(i) This question was well answered and many candidates gained credit for the idea of a constructive plate boundary and the plates moving apart or diverging. A significant number of candidates went on to gain full credit for this question, being able to identify clearly the reasons for active volcanoes in Iceland using the diagram as a stimulus.

(ii) This was a very well answered question and some excellent responses were seen. Such responses showed knowledge of the reasons for people living in areas with active volcanoes. There were some good examples of development seen and the question differentiated well, allowing the most able candidates to develop a full range of ideas. Most common references were to farming and tourism although it should be noted that tourism needs a link to either jobs or wealth to gain credit.

(c) This was well answered and the best answered of all the case study questions. A wide range of case studies was used with Haiti (2010); Sichuan (2008) and Japan (2011) being the most popular choices. There was a good level of place specific knowledge shown and most candidates were able to develop the impacts of the earthquake well. Candidates should be reminded to name a specific area and also ensure that any statistics used are accurate. They should also be encouraged to develop their ideas fully to describe the impacts, rather than just produce a list of impacts with supporting statistics.

Question 4

This question was less popular and, on the whole, not as well answered as **Question 3**.

(a)(i) This was very well answered and mostly correct.

(ii) There were mixed responses to this question and it was generally not well answered. Responses could have been improved by making better use of the photograph to describe the characteristics of the wave cut platform.

(iii) This question was answered better and most candidates identified the process of erosion as being significant, especially hydraulic action. There were some very good answers seen, where candidates clearly knew the process of formation well. However, candidates sometimes confused the order of the process and answers would have benefitted from a clearer sequence of points to explain the formation of the feature. In addition, some candidates did not link the collapse of the cliff with undercutting and the subsequent collapse of the overhang.

(iv) This was generally well answered though some candidates did not refer to the alternate bands of hard and soft rock. Most candidates, however, appreciated the link between the type of rock and the rate of erosion and went on to gain high marks.

(b)(i) This was very well answered. Most candidates correctly described the opportunity from the photograph and made good use of the images provided.

(ii) This was generally well answered with many candidates making points relating to tsunamis; erosion, storms and flooding. There were some missed opportunities for development and some confusion with the problems associated with human activities such as tourism.

(c) Overall candidates did not perform as well on this question as some of the other part **(c)** questions, although some very good responses were seen. Candidates should ensure that they refer to an example at an appropriate scale. In some answers, there was a lack of clear development to indicate what the strategy was like or how it worked to reduce either the problem of coastal erosion or the impact of coastal storms. There was little place specific reference to enable the award of full marks. Some candidates did not understand the concept of a hazard as identified in the syllabus and wrote about how tourism could be managed.

Question 5

Although not quite as popular as Question 6, this question was answered by a significant number of candidates.

(a) (i) This was very well answered. A common error was the use of the term 'indicator' rather than 'index'.

(ii) This was well answered with most candidates correctly identifying issues such as healthcare, food supply, water availability and education.

(iii) There were variable responses to this question. Most candidates were able to express the idea that it was a composite index and identify at least one of the indicators on which it is based. Perceptive candidates gained full marks as they also identified ideas such as the index being useful to compare countries or to show changes over time.

(iv) Although this question was generally well answered, there were some mixed responses. Responses should have made a comparison between the two countries and focus on the explanation . Some candidates simply gave a list of statistics to describe the inequalities rather than focus on reasons to explain them.

(b) (i) This was very well answered and good use was made of the diagram.

(ii) This was well answered with some good development of ideas. Responses needed to correctly identified a change in one of the indicators given in Figure 7 and did not simply lift ideas from it. They needed to attempt to explain these ideas in order to answer the question in detail.

(c) This question was well answered with some very well developed ideas. The full range of marks was seen. Candidates were asked to write about the impacts of a transnational company, which they generally did very well, but there were some irrelevant references to locational factors. There was good development of ideas here, although candidates need to ensure accurate place specific information is included to access level 3 and maximise their marks.

Question 6

This was a popular question.

(a) (i) This was generally very well answered and most candidates understood that this meant farming for sale or profit. It may help for candidates to ensure that key term definitions are as precise as possible and compile glossaries to help them during the course to build up their knowledge.

(ii) This was very well answered with most candidates gaining full credit. In responses such as this full use of the map and key to answer questions is crucial – for example, to appreciate that sugar cane was next to the international boundary rather than the coast. A significant minority of candidates confused east and west.

(iii) This was less well answered and few candidates gained full credit. Answers about the cost of transport and perishability of goods were the most common responses seen. There were not many references to the crops being bulky or the idea of the transport infrastructure being poor. Some candidates incorrectly focused on the reasons for the location of where the crops were grown rather than why the factories which process them are close to the crops.

(iv) This was generally well answered with candidates showing an appreciation of the factors influencing the location of industry. Generally the factor was explained well and candidates went on to access the second mark for each factor. Some candidates did not recognise the instruction in the question to give two factors other than raw materials, and some wrote about factors affecting agriculture rather than industry.

(b) (i) This was very well answered on the whole with accurate use of statistics to support answers. Errors were made where candidates referred to changes in production rather than changes in the area of land used. Some candidates included irrelevant references to jute, as the question only required reference to tea and sugar cane.

(ii) This question discriminated well and good candidates tended to explore a wide range of strategies to increase agricultural production. They showed good knowledge of strategies to increase production and had been prepared well for this type of question. A small minority made a reference to making farming more intensive without any elaboration as to how this would be achieved. A small minority referred to strategies such as terracing to increase land rather than increase production using less land.

(c) Generally this was not as well answered as the other case study questions. There were some suitable examples chosen such as the Ganges Valley or Canadian Prairies. Weaker examples tended to be local ones where candidates did not include any detail. Some candidates did not choose an example at an appropriate scale, naming a country rather than an area or individual farm. Whilst most candidates recognised the need to identify a specific land use, a minority made no reference to land use in their answer at all. Some candidates did so but in a simplistic way such as 'crops' or 'livestock'. The better answers gave a named area and appropriate specific land use such as 'rice farming in the Ganges Valley' and developed their ideas, backing them up with accurate place specific information, such as climatic data or soil type. Rarely did a candidate fail to score, although Level 1 answers were fairly common where candidates did not go beyond simple ideas. Some answers incorrectly referred to human factors even though the focus of the questions was on the natural environment.

GEOGRAPHY

Paper 0460/21
Paper 21

Key messages

Generally, candidates made good use of the data and resources provided and studied them carefully.
Candidates could sometimes have improved the accuracy of their map work answers by paying particular attention to the map key.
Candidates sometimes copied out figures or information from the resources in their answers without interpretation and failed to score marks.
The lines provided in the question/answer booklet are intended to give a guide as to the approximate length of the answer required. Where only one or two lines are provided for an answer, candidates should respond briefly and to the point.

General comments

Responses to the questions ranged from very good to weak across the whole paper. The range of marks was similar to previous years. Most candidates answered the questions within the spaces provided and avoided the use of the additional pages. Almost all candidates were able to complete the paper in the allotted time.

Comments on specific questions

Question 1

(a) Most candidates scored good marks in this part but others did not use the map key carefully. Most candidates identified the *railway* correctly in part **(i)**, *power line* in part **(ii)** and *sports ground* in part **(iii)**. In part **(iv),** where the answer was *Vosso*, some candidates offered other names from elsewhere on the map.

(b) Amongst the correct answers given, the location of Voss *on a river or lake* was most commonly stated. Candidates often mentioned that there were *many roads* but a mark was only gained if they referred to the idea of a *road junction* or *route centre*. Other candidates were unsure of the meaning of *site* and described the human activities taking place in Voss.

(c) In this part, which was usually more accurately completed than part **(b)**, good answers included reference to the *high* land, with *steep* slopes and a high point of 654 m, although not all candidates gave the units of height. Many candidates also noted that the land was *steeper in the north/west than the south/east*. Few answers identified the *small* or *deep valleys* in the area.

(d) Many candidates found this a difficult question. Each part required just one answer, (**X** = forest, **Y** = cultivated area, **Z** = private road) and where candidates gave several answers, no credit could be given.

(e) In part **(i)** few candidates gave the correct distance of 3050 m. In part **(ii)** most candidates gave good answers, although some concentrated entirely on just one aspect of the route such as the changing directions. The best answers also described land use and features along the way and how the route reflects the relief of the area.

Question 2

(a) In part **(i)** most candidates gave the correct answer of 6. In part **(ii)** there were some confused answers but those candidates who understood the idea of settlement order were able to give concise, correct answers such as '*as the order becomes higher, the number of settlements becomes lower* and *as the order becomes higher, the settlements are farther apart*.

(b) The boundary of correct circles included Braunton and at least two neighbouring hamlets or villages, but did not include any of the larger settlements. Incorrect answers often included Barnstaple within the circle. About half of the responses were correct.

(c) There were some pleasing responses to this more difficult part of this question, although the majority were often too vague. The best answers made reference to the importance of the *road junction* in Holsworthy giving *good accessibility*. Others identified the *large of sphere of influence* and recognised that there were *no other towns in the area*.

(d) Almost all candidates gained full credit here; those that did not had usually reversed the order completely.

Question 3

(a) In part **(i)** most candidates correctly drew convergent arrows. In part **(ii)** only about half the candidates correctly selected **X** with most of the rest selecting **Y**. Part **(iii)** was more difficult. Many candidates observed the *island* location of the volcanoes but very few considered the general location with respect to the plate boundary. There were many irrelevant references to the names of the volcanoes themselves and to the cities.

(b) There were some good answers given by candidates who recognised that both villages and roads would be destroyed, that villages would be cut off, that people would be evacuated and that not all villages would be affected. Some candidates suggested answers which could not be deduced from Fig. 6 and which therefore could not gain credit.

(c) The emphasis in this part was about how volcanic hazards could be threats to human life. Some responses clearly linked each hazard to the threat to human life but where the link was not stated, marks could not be awarded. A wide range of linked answers were credited such as *ash causing burial, volcanic bombs killing by force, pyroclastic flows burning, the force of lateral blast* and *poisonous gases.*

Question 4

(a) There were some good responses to this photographic question concerning vegetation, with candidates commonly describing the *shrubs or bushes*, *lack of leaves*, *yellow and red flowers, small leaves and thorns and the small tree with a wide trunk*. Some candidates referred to other aspects of the photograph, including the climate and scenery, which were not required.

(b) Responses in this section were generally accurate. Most candidates correctly stated *hot* in part **(i)** but fewer correctly stated 13 °C in part **(ii).** Nevertheless, even when part **(ii)** was incorrect, many candidates scored the mark in part **(iii)** where they understood the meaning of temperature range and were able to calculate it. In part **(iv)**, most candidates recognised the *low* amount of rainfall.

Question 5

(a) Most candidates scored at least one mark in this part, although some did not develop their answer sufficiently to gain full credit.

(b) In part **(i)** almost all candidates gained credit for *Papua New Guinea*. In part **(ii)** Candidates usually recognised that access to the facilities was better in urban areas than rural, but again, many did not develop their answers. Further credit could be gained by noting that Australia had 100 per cent access in both urban and rural areas or by identifying the huge difference in figures for Papua New Guinea. Where a candidate had merely copied out data from Table 1, no marks were gained.

(c) In part **(i)** the majority of candidates were able to draw an accurate pie chart and label it correctly. In part **(ii)** answers were excellent with most candidates recognising from Table 2 that the main use

of water is in agriculture, with Papua New Guinea as an anomaly. Others correctly identified that the lowest use of water is in industry.

Question 6

(a) The majority of candidates correctly identified *large scale arable* in part **(i).** In part **(ii)** few candidates seemed to be able to relate the photograph to methods used to prevent soil erosion. Some correctly mentioned the planting or presence of trees as one method but struggled to explain how these helped. Very few candidates identified contour ploughing.

(b) In general, candidates understood and coped well with the information given in Fig. 9. Most candidates correctly suggested that the sugar beet farmers in Europe would produce more or increase their income. A variety of ideas were given for the Jamaican sugar cane farmer. Candidates gained marks for suggesting that they would sell less or lose money or be unable to compete with the EU producers. In part **(iii)** the key idea here was that the drinks company would benefit from cheaper sugar and many candidates deduced this from the information given.

GEOGRAPHY

Paper 0460/22
Paper 22

Key messages

When describing relief, candidates should try to focus on height, gradient and any specific relief features such as valleys, ridges, spurs, plains or plateaux
When describing distributions on maps, candidates should use compass directions and avoid phrases like "above the Equator" or "at the bottom of the map". Candidates are expected to be more geographically correct in their answers. This was seen in **Question 4(a)**
When giving figures in answers (e.g. altitudes, distances, temperatures) candidates should always quote the correct units. This was important in **Questions 1, 2** and **4**
The best answers to the photograph questions (**Question 3** and **Question 5**) focussed on features that could be seen in the photographs rather than speculation or guesswork
Section 2.5 of the syllabus requires candidates not only to be able to describe the equatorial and hot desert climates but to explain them. This means that candidates should be able to give reasons for the features of temperature and rainfall of these climates.

General comments

There were parts of all questions which many candidates found to be demanding and these are described below. **Question 6** proved to be the easiest on the paper and **Question 4** the most difficult.

Question 1

(a) Candidates generally identified **Feature A** as a *county road or state road* (examiners allowed either because of the similarity of the symbols), **Feature B** as a *power line,* **Feature C** as a *camp site,* and the type of land at **D** as *marsh*. **Feature E** proved more difficult; many candidates correctly answered *quarry* or *gravel pit* but some responses gave *embankment* which was incorrect as this was a different symbol.

(b) The responses to the area and distance questions were variable. The area of the lake was 3 km^2 and the distance was 2225 m; generally, the better candidates gave the correct answers.

(c) Many candidates correctly identified the river feature in **Area H** as a *delta*. Examiners also accepted answers such as *braiding*, *islands* and *distributaries*. Most candidates correctly labelled the direction of flow of the river on Fig. 1 by an arrow pointing to the south west.

(d) The vast majority of candidates were able to give the upper limit of forest growth correctly at 600 m. Most candidates recognised that cultivation was generally next to the lake, although fewer noted that it was on lower land, on flatter land, next to roads and settlements, and that there was also a large area in the south east around Nordheim.

(e) For the description of the relief, examiners accepted points about the height of the land, the gradient and other relief features. For the height, marks could have been scored for noting the high or mountainous land, the highest point at 1410 m, the lowest heights of 60–80 m, and that the land was higher in the North West. Relevant gradient points included the ideas that the land was generally steep, gentle near the lake and gentle in the North West. Other relief features which gained credit included the small valleys, ridges and spurs. Candidates achieved varying success.

For the description of the drainage, examiners accepted the ideas that the area was drained by small rivers, flowing straight, down a steep gradient, and towards the lake. Many candidates also noted the small lakes on high ground and the high drainage density. Some candidates wrote about aspects of hydrology other than the surface features of drainage seen on the map.

Question 2

(a) Most candidates correctly completed the graph of population growth rates, although a signifacant number omitted the question.

(b) Most candidates gained full credit for their description of the changes in population growth rates, generally noting the fairly steady or fluctuating rate until 2006, the rapid increase to 2007 and the slow decrease to 2010. Most candidates correctly attributed the change in growth rates between 2006 and 2007 to the rapid increase in the birth rate and the large decrease in the death rate.

(c) Most candidates read the birth and death rate graphs, then did a subtraction to give the correct natural increase. However significant numbers failed to give the correct units (either per 1000 or %) and failed to gain the second mark.

(d) This was well answered with most candidates noting that the growth rate figures would also take migration into account.

Question 3

(a) This was not well answered and many candidates failed to focus on the *site* of the settlement and described features relevant to **Part (b)**. The site was gently sloping (not flat), on lower ground and appeared to be dry.

(b) The response was variable and, as usual, the best answers focussed on what could be seen in the photograph rather than speculation about building materials or the economic status of the inhabitants of the houses. A wide variety of responses was given credit. For **Area X** these included: the small houses, mostly single storey, with spaces between or gardens, roads, uniform design, power lines, variety of colours and street lights. For **Area Y** these included: the smaller houses, huts or shacks or slums, the lack of services, high density and irregular arrangement of the houses.

Question 4

(a) In describing the distribution of deserts on Fig. 6, many candidates gained full credit by mentioning the coastal locations on the west of each continent. They were less successful in describing latitude; as well as the usual incorrect terminology in responses which said “below the Equator”, candidates often referred to 40 °S, which was beyond the range of the deserts.

(b) The evidence from Fig. 7 that the place was in the southern hemisphere was the colder temperatures in June/July, or the warmer temperatures in December/January. Many candidates gave these responses or, alternatively, said that June/July was summer. Significant numbers of candidates were not able to answer this, with many referring to rainfall. They were more successful in stating the annual range of temperature, where answers of 14 or 15 °C were accepted. The correct statements about the climate shown in Fig. 7 were: *very low rainfall* and *hot summers with some rainfall*; few candidates identified both of these statements.

(c) Few candidates were able to give reasons for the (very low) amount of rainfall in the areas shown in Fig. 6. Examiners accepted points such as: high pressure, descending or stable air, cold ocean currents, offshore winds and rainshadow.

Question 5

(a) There was a wide range of responses to this question. Full marks were common, as were very low marks. The candidates who scored best were those who described what they could see in the photographs, rather than giving textbook descriptions of cumulus, cirrus and stratus clouds.

(b) Many candidates gained credit for noting that air rises, cools and the water vapour condenses. Some also gained credit for giving reasons for the rising air. Very few stated, incorrectly, that the air condenses. Others were confused about the condensation process and were not aware that it involved the gas (water vapour) turning to liquid droplets (cloud).

Question 6

(a) Most candidates noted that **Feature 5** has been the result of the work of transnational corporations and that **Feature 3** showed how the environments of separate countries are linked.

(b) Good answers focussed on Fig. 8 and the life of a young person in an LEDC. They referred to points such as the young person going to live or work in another country, sending home remittances, adopting different cultures and speaking different languages. They gave specific examples of the effects of global warming, air pollution and international cooperation. They noted that the young person may find work in a newly developed, manufacturing industry and develop new skills. They pointed out potential effects, both positive and negative on living standards. There was a widespread belief that pollution is caused by global warming rather than the reverse.

GEOGRAPHY

Paper 0460/23
Paper 23

Key messages

In various places in the paper, including **Question 1(f)**, bold print was used to draw attention to information. However, **Question 4(a)(i)** and **Question 6(a)(i)** still had high omission rates.
When giving figures in answers (e.g. altitudes, distances, temperatures) candidates should always quote the correct units.
The best answers to the photograph questions focused on features that could be seen in the photographs rather than speculation or guesswork.
Section 2.5 of the syllabus requires candidates not only to be able to describe the equatorial and hot desert climates but to explain them. This means that candidates should be able to give reasons for the features of temperature and rainfall of these climates.

General comments

Most candidates were able to score at least some of the marks on each question. The most challenging sections were **Question 4(a)(iv)**, **Question 5(b)(ii)** and **Question 6(b)(ii)**. However, these questions still contained more straightforward parts, such as **Question 4(a)(i)**, **Question 4(a)(ii)** and **Question 6(a)(iii)**, and there were also easier parts early on, such as **Question 1(a)**.

There was no evidence that candidates were short of time overall, and many had time to write extensive answers to the last question.

Question 1

(a) Fig. 1 showed the location of certain features, which candidates were asked to identify. **A** was a power line. **B** was an area of marsh. **C** was a ski trail. **D** was at a trigonometric point where the land height was given as 673 metres. The building at **E** was a farm. Many candidates gained full credit here. In part **(a)(i)**, some candidates confused power line and railway line.

(b) Evidence of a tourist function at Vingnes included hotel, restaurant and swimming. Others noted the ski jump, ski trail, sports park, nature conservation area, marked footpath, and the café and boatshed. Many candidates identified three of these features. Common errors included assuming that Vingnes was on both sides of the lake and thus selecting features only found in the bigger settlement of Lillehammer. Some made a list of tourist information symbols from the map key, many of which were not relevant.

(c) In part **(c)** candidates were asked to describe the natural features of the lake between northing 78 and the southern edge of the map. Candidates often noted the bend at Vingnes, the variable width, the flow from north to south and the inflow of tributaries. Many also noted the islands, the nature conservation area and spotted the lake elevation information. One or two also scored a mark for *delta*. Some did not understand the term ‘natural features’, while others focused on relief and land use around the lake.

(d) The feature at 815 818 was a trigonometric point. There were many correct answers. Others may well have been in the correct place, but wrote *forest* or *marsh*, which was applicable to much of the area, not just that specific point.

(e) Candidates were then asked to look at the map extract as a whole and describe the distribution of the main settlements. Most did this in relation to the lake, and gained marks for saying *along the lake side*, for pointing out that there was *more on the east side* and for making it clear that settlement was *on both sides* of the lake. Many wanted to use the settlement pattern descriptions of nucleated, dispersed and linear, which led some to make the point of *along the road*. Other valid comments included reference to *gentle slopes*, *lower land* and *valleys*, particularly the *confluence of valleys*.

(f) From east to west, starting at the lake shore, **A** was a steep uphill slope, **B** was a gentle uphill slope, **C** was a gentle downhill slope and **D** was a shallow valley. Some went into detailed relief descriptions, which was not necessary but, provided the relevant phrases were included, were given the relevant credit. Many candidates got **A**'s steep uphill slope correct but were unsure after that. Some responses had clearly gone from west to east rather than east to west.

Question 2

(a) Photograph A showed the central business district (CBD), the evidence being the tall buildings and the high building density. *Names on buildings* was also an acceptable answer. A good many candidates correctly identified the CBD and gave the appropriate supporting evidence.

(b) Evidence for mixed land use in Photograph B included the *buildings of various heights* and pairs of land uses such as *road, railway, helipad, flats, apartments, houses, stadium, offices, park* and car park.

(c) In Photograph C reasons for development of industry included *flat land, wide main roads, railway link, the nearby river for transport and water supply, the residential area for labour supply or as a market*. Good answers often focused on the modes of transport, while weaker candidates often made a point in relation to the river but did not elaborate on the roads and then went on to discuss pollution and the lack of residents in the immediate area.

Question 3

(a) Most candidates included in their response that the white paint was to reflect solar radiation or prevent heat absorption. The louvres allowed air into the screen, whilst preventing too much air flow. The double roof insulated, stopping solar radiation and conduction. Some candidates thought it was to protect from rain. The orientation of the door was least known. Many did not make it clear that it was to stop the sunlight entering and the sun's rays falling directly on the instruments. However, the standard height was easier and many wrote about avoiding terrestrial radiation or ground heat. Having standardised readings for comparability was also valid.

(b) Candidates were then given some data from the maximum and minimum thermometers. The temperature range on Monday was 6 °C, while the mean temperature on Tuesday was 18 °C. This was straightforward and familiar to most candidates, though a few simply quoted the figures for the range, rather than performing the calculation.

Question 4

(a) Most candidates were able to complete and read the graphs correctly.

In giving evidence from the graph to support the statement that the climate was *wet all year*, most candidates realised that it rained in every month, and the lowest rainfall was 130 mm. The strongest responses stated that this was a high monthly total. Other valid points were high annual total, a calculated amount for this and a calculated or estimated average of 200–250 mm.

Part **(iv)** was the most difficult and very few candidates were able to give two reasons for the small annual range of temperature. Valid points were the high angle of the sun, consistent length of day and night and the cloudy climate.

(b) Not all candidates noted that the climate shown in Fig. 4 will support vegetation growth for all 12 months of the year.

Question 5

(a) Most candidates knew that the renewable source of electricity generation from underground was geothermal. Some responses ignored *renewable source* and put coal, oil or gas. Biofuel, biomass or biogas was the renewable source made from crops. This was less well known that part **(a)(i)**, with some candidates just naming crops.

(b) Candidates were then presented with Fig. 5, showing the percentage of UK electricity generated from low carbon sources over 4 years, and were asked to describe the main changes. The graph fluctuated, but did show an overall increase of 12 per cent, and pointing this out was a relatively easy way to gain credits. Credit was also awarded for describing the increase, followed by decrease in both 2011 and 2012 and the increase in 2013 followed by the more stable state of 2014, after the peak. A few commented on the cyclical nature of the changes and many quoted figures in support of their points.

Candidates then had to suggest why the percentage generated from renewables might reduce. This was a challenging question, with candidates often getting one point but very few thinking of three. Relevant points included: period of calm stops generation of electricity by wind, solar power reduces in cloudy sun periods, solar power reduces at night, HEP stops if river freezes, some biofuel is seasonal or affected by crop failure and the increased use of other sources.

Question 6

(a) Many candidates were able to plot the triangular graph correctly. The percentage of Japan's population aged 65 and over was 25 per cent, 26 per cent or 27 per cent. Again, there were many correct answers.

In part **(iii)** candidates had to look at Qatar's population structure and compare it to the other countries. Most candidates were able to give one comparative statement such as Qatar having the largest in the 15–64 group or the smallest in both 0–14 and 65+. Many backed this up with data but data alone was not enough for the mark.

(b) The dependent population are the children (aged 0–14) and the old people (aged 65+), who are not working, so not economically active. This was generally well known, though a few had confused dependent and independent.

In the final part of the question many candidates realised that there were a high number of dependents, although it needed to be clear that these were children, or young dependents. There would then be costs for schools, health care etc. and, with a lower working percentage, the government would not get much income from tax or there would have to be a higher tax rate. The overly burdened education system could result in lack of skills feeding into the workforce of the future and the expanding population could see further population growth. Typically, candidates noted the highly dependent population but did little to relate this to economic development.

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 could help to improve candidate performance in future. Most of these have featured in previous reports but the same issues recur. 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 answer 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.
If comparing statistics, it is important to use paired data rather than one set on its own.
Check you are using the resources that a question refers you to, e.g. *Support your conclusion with data from Fig. 5 and Table 2.*
Attempt all completion tasks on graphs, tables or diagrams – not all the answers are on lines and in writing. Many candidates are missing out on relatively easy marks by not attempting these questions.
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 or pen as scripts are scanned for marking and light colours do not always show up. Always shade bar graphs and pie charts accurately.
When you think you have finished, check that you have not missed a question out. Some questions are hard to find if they are on pages with a lot of graphs or maps. Make sure you have answered the questions on every page. This applies specially to questions where you are asked to complete tables, diagrams, graphs or maps.

General comments

Section 3:

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

There is less general advice to be given for areas for improvement with this paper compared with others. As there are no choices to make, it is difficult to miss sections out, although some candidates omit graph completion questions which are usually 'easier' to answer. This is an on-going problem from year to year despite it being highlighted in each report to centres. Although there were no significant reports of time issues some candidates do write too much in some sub-sections. They should be encouraged to answer more succinctly and perhaps give more thought to their answers. Most points for teachers to bear in mind, when preparing candidates for future Paper 41 questions relate to misunderstanding or ignoring command words and the use of appropriate fieldwork techniques and equipment. Particular questions where candidates did not score well often related to them not carefully reading the question, for example **Question 2(e)(i)** where some candidates suggested a hypothesis about traffic or pedestrians. As in some previous papers **Question 2(e)** required candidates to suggest a suitable investigation to extend their fieldwork. This type of question is frequently included on this paper and is an area which centres should practise with candidates. However, it is not good practice to develop a series of generic improvements which may apply to all fieldwork as such suggestions tend to be vague and not worth credit.

Centres should 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)**, **1(a)(ii)**, **1(a)(iii)**, **1(c)(i)**, **1(c)(ii)** and **2(b)(i)** focussed on specific equipment and techniques commonly used in fieldwork. Centres are encouraged to carry out basic fieldwork with candidates, especially using simple techniques which can be done on the school site or in the local area.

Comments on specific questions

Question 1

(a) (i) Most candidates recognised the Stevenson Screen, but wrong answers included bee box, conservatory, geographical box, weather station and measure box. 7 per cent of candidates did not answer the question.

(ii) Better answers referred to open space or location away from trees or buildings. However, some answers lacked an explanation of the location. Many answers were too vague such as 'nothing can affect the readings'. Weaker responses suggested the location was sheltered from wind and rain, thus revealing no understanding of the implements inside.

(iii) The correct choice was made by most candidates but, as in the first question, some candidates showed a lack of knowledge of the weather instruments contained within the Stevenson Screen by suggesting that an anemometer, wind vane and rain gauge would be placed in the box.

(b) (i) More than half of the candidates made the correct choice from the options provided. The most frequently suggested incorrect answer was 'the amount of moisture in the air'.

(ii) The calculation of relative humidity was made successfully by many candidates. Some candidates made an error by reading the wrong line in the relative humidity table.

(b) (i) Many candidates suggested appropriate advantages of using digital measuring instruments. The most common suggestions were that a digital instrument is quick to use and saves time, gives an accurate reading and is portable or easy to carry. A common unacceptable answer was that a digital instrument is 'easy to use'. This needed clarification of why it was easy.

(ii) Most candidates chose the correct alternative from the answers given. This showed good understanding of 'unreliable'.

(c) (i) The relative humidity was plotted correctly by the vast majority of candidates.

(ii) Most candidates used the correct methodology to calculate the mean relative humidity at the five sites with vegetation cover. Some candidates made the error of calculating the mean of all ten sites, including those with non-vegetation cover.

(iii) This task proved more challenging, although over half of the candidates completed it correctly. Some candidates made the error of plotting the mean at 74.6 per cent (the same as vegetation

cover) or misreading the scale and plotting the average at 74.8 per cent. A small number of candidates drew a vertical line, thus showing no understanding of the term 'average'.

(iv) Although most candidates identified that the hypothesis was false, the question differentiated well. There were many excellent responses which used appropriate evidence to support the conclusion with appropriate data. Although weaker candidates often recognised that the hypothesis was false, their answers lacked accurate justification.

(e) (i) Most answers were correct, but 6 per cent of candidates did not answer the question.

(ii) Most candidates correctly drew the isoline between sites 3 and 8 and connected their line to the sections drawn on the map. Weaker candidates frequently plotted the line correctly between the two sites but did not join it up. Again a significant proportion of candidates (14 per cent) did not attempt the question.

(iii) Most candidates correctly concluded that hypothesis two was true. Their use of supporting data proved to be a good discriminator. The best answers used data from contrasting sites to show the difference. The most successful candidates also referred to higher temperatures near the village or castle or that the highest isoline surrounded the area of buildings.

(iv) This question was difficult and few candidates made suggestions which contained enough detail. For each suggestion three elements were needed – temperature, land use and supporting reason. For example, temperature is lower where woodland gives shade. Many candidates just identified the factors which affect temperature without explaining how this happens.

(f) This was the most difficult question on the paper. A minority of comprehensive descriptions of how to use the equipment but these were outnumbered by the majority of answers which appeared to have little idea of how the equipment works. Many candidates used the photograph to try to work out how it could be used but with little success. The most common error was the assumption that the sunshine recorder works automatically with no need to insert a card or piece of paper each day to record when the sun is shining. Candidates wrote about the recorder itself heating up and turning to follow the path of the sun.

Question 2

(a) The majority of candidates correctly described two features. The most common responses were tall and close together. Weak candidates described them as 'large' which was too vague.

(b) (i) The question proved to be challenging and discriminated well. Although candidates were required to describe a common fieldwork technique some candidates were too vague in making suggestions such as 'count the cars'. Also, many candidates wrote about choosing fieldwork sites, times and duration of the count. These were not acceptable as it was information supplied in the question paper. The best answers focussed on practical tasks such as using a clicker as their counting method, recording their count on a tally chart and locating students on both sides of the road with different tasks to do. Some candidates made the mistake of referring to the task as a pedestrian count.

(ii) Most candidates gained credit on this question but the level of accuracy of plotting varied. The scale and data to be plotted made this a challenging question which differentiated well.

(iii) Most candidates recognised the overall decrease in traffic from site A to site F. Fewer candidates recognised the anomalies which made the question a good discriminator. Also, the use of paired data was variable. Paired data must be used to show a trend or anomaly. Some candidates did not identify the road which the statistics referred to. This is also needed when making a comparison.

(iv) The majority of candidates identified that road 3 was busier. Many supported their decision by referring to the overall difference in traffic numbers or compared one site on each road.

(c) (i) Once again many candidates (15 per cent) failed to complete the bar. Other candidates generally plotted the data accurately. Errors made by some candidates were misreading the scale and making the bar too tall, or failing to shade it to match the others on the map.

(ii) Most candidates correctly agreed with the hypothesis. Better answers supported the decision with paired data from one road to show the decrease in pedestrian numbers. The best candidates recognised that there were anomalies in the general trend and identified these with supporting data. It is worth emphasising again that paired data is required when referring to an anomaly in order to put the anomaly figure into context.

(d) (i) Most candidates correctly plotted the two segments of the divided bar graph. Some candidates made errors in misinterpreting the scale or shading the segments incorrectly.

(ii) The question proved to be difficult for many candidates who just compared the number of pedestrians rather than comparing the change in numbers throughout the day at the two sites.

(iii) This was another challenging question. Whilst many candidates gave reasons why some areas were busy or not at certain times of the day, only a minority of candidates related these ideas to the site (A to F) shown on the map.

(e) (i) Most candidates were able to identify an appropriate hypothesis to test. However, there was a significant number which failed to follow the instruction not to include a hypothesis about traffic or pedestrians. Common hypotheses which were suggested included ‘Land use changes with distance from the city centre’, and ‘Building height decreases with distance from the city centre’. Many candidates phrased their idea as a hypothesis rather than just stating a topic such as ‘building heights’.

(ii) The final question required candidates to describe a suitable fieldwork method to test the hypothesis. Many candidates were able to make some suggestions about how it could be tested, although the detail and quality varied. The most detailed answers were often about building heights and environmental quality. Weaker candidates wrote in general terms about groupings, timing and checking data rather than any specific methodology to collect and record data to test the hypothesis.

GEOGRAPHY

Paper 0460/42
Alternative to Coursework

Key Messages

Here are a few messages to pass on to candidates and to consider in their preparation. These have been suggested by examiners based on scripts they have marked.

When answering Hypotheses questions that ask whether you agree or not, always give your opinion at the start of your answer before any supporting evidence. This will usually be *Yes, No* or *Partially / To some extent*. Do not just copy out the Hypothesis if you agree with it. It is important to make a decision and state it as well as provide the data or evidence for your choice. Be clear in your decision – expressions such as "*might be true", "could be false*", "*true and false"* are too vague.
If you are provided with a decision about a Hypothesis e.g. *Partly true* in **Question 2 (c)(ii)** – do not then disagree with it and try to justify your view. You need to support the decision made by the students with evidence. Note that if the question requires data as evidence you must give numbers and statistics; descriptive statements will not count for credit. If evidence is asked for this can include numbers and descriptive statements.
When giving figures in an answer always give the Units if they are not stated for you. It is also important that your numbers are clear e.g. a 4 can look like a 9; a 7 can look like a 1, sometimes a 2 looks like a 5. Candidates writing must be readable; credit cannot be given if the answer is illegible.
When shading or completing graphs, use the same style as that provided in the Question and make sure a sharp pencil gives a good dark image. Check you understand the scales used and the importance of any plots already provided. If adding plots to complete a graph, these should be in the same style as the plots already on the graph e.g. crosses should be crosses not dots.
When completing pie charts or divided bar graphs, complete these in the order of the data given and in the order of the key which conventionally will be clockwise on a pie graph and from left to right on a divided bar graph. Make sure your shading matches the key e.g. if diagonal shading slopes to the right, do not draw yours sloping to the left.
If candidates are referred to data from a Table or graph it is more sensible to use the exact figures from the Table rather than make erroneous judgements from the graph.
When you think you have finished, go back and check that all graphs have been completed; too many candidates lose easy marks by missing out graphs.
Read questions carefully and identify the command word e.g. *Describe…, Explain…* A question that asks *'Why?*' requires a reason to be given not a description.
Check you are using the Resources that a question refers you to e.g. **Question 1(c)(iv)** Table 1 and Figs.3A and 3B.
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.
Make sure you understand how the fieldwork is being carried out e.g. in **Question 1 (a)(ii)** many candidates did not gain a mark for the use of ranging poles because they wrote that they were used at the breaks of slope but Fig.1 clearly shows they are being used at a set distance and not at the break of slope.
It is important that, when candidates write the remainder of their answer elsewhere, that they signal it by writing something like –*"continued on page 18"* to ensure it is seen. It needs also to be noted that too many candidates gave the wrong sub-section number by their extra work this session which made it more difficult to match to their earlier answer and credit correctly. This year, as in 2016, many candidates chose to write long answers and frequently wrote down the sides of the pages or were given 4–16-page booklets despite additional pages with lines being provided for this very purpose! As there are always spare pages at the back of the exam paper, Centres should not be issuing separate booklets for extra work.

General comments

Most candidates found this examination enabled them to demonstrate what they knew, understood and could do. It appeared to be a positive experience for most candidates with more high marks at the bottom and top ends than in previous sessions. The overall range of marks was similar to last June with weaker candidates scoring on the practical questions such as drawing graphs or diagrams, making calculations and making choices from tables, and those of higher ability scoring well on the more challenging sections requiring judgement and decision-making on Hypothesis choices with evidence and other written answers.

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, the use of equipment in fieldwork and the importance of experiencing fieldwork – even if is only in the school grounds or simulated in the classroom. Particular questions where candidates did not score well also often relates to them not fully reading the question or just completely missing out straightforward graph completions. 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.

Centres need to be aware thatt, although this is an *Alternative to Coursework* examination, candidates will still be expected to show that they know about fieldwork equipment, how it is used and fieldwork techniques. Some fieldwork experience is vital even if there is only limited opportunity within the Centre. Familiarity with maps, tables, sampling methods and the various graphs listed in the syllabus is also important to this examination.

Question 1 proved to be slightly easier than **Question 2**. It required candidates to know about the formation of sand dunes and aspects of measuring visitor impacts on beaches and dunes and solving impact problems. There were questions on using a transect across a sand dune and using a quadrat to estimate vegetation cover and species change. A pie graph, bar and line graphs, and a bi-polar survey with a calculation and plots to add to a graph were tested. Candidates also needed to make judgements using statistics as well as applying knowledge and understanding to justify or disagree with two Hypotheses.

Question 2 proved to be slightly more difficult than **Question 1**. It required candidates to apply their knowledge and understanding to the comparative use of water between Delhi and 6 rural villages. The question then developed into focussing on the villagers' access to water with graphs showing distances walked, amounts collected and the time taken to collect water in the 6 villages with candidates asked to identify whether there were relationships between these variables. Skills tested in this question included a ranking exercise, drawing and comparing a divided bar graph, sampling methods, and two scatter graphs to add plots to. They also needed to make judgements from evidence with regard to two Hypotheses; they were told that the students had decided that the first Hypothesis was partly true and needed to justify that decision instead of making their own judgement.

Comments on specific questions

Question 1

(a) (i) Most candidates were aware that wind blowing onshore and moving sand against an obstacle were the main reasons for the creation of sand dunes. Many candidates also developed the role played by vegetation, especially marram grass, growing on the sand and stabilising the dune. A significant minority of responses said that sand dunes were formed by constructive waves, swash and backwash and longshore drift with wind playing no part in their formation.

(ii) There were some excellent detailed answers given here, Most candidates stated that the tape measure was used to measure the distance between the poles with these used to mark out that distance. A few thought the poles would be used at the break of slope but the diagram clearly shows that the distance measured was not at the break of slope. Many thought that the string was used to keep the poles upright and connected, less realised that the string was to be tied at the same height on each pole to give a line parallel to the slope so that the angle could be measured. It is important for candidates to realise that the clinometer does not calculate the angle nor does it measure the gradient of the slope or its steepness; its function is purely to measure or show the angle of slope which most candidates stated. Some candidates confused the function of a clinometer with a chronometer. The use of the tape measure and clinometer were the best two answers out of the four required here.

(b) The pie graph was done well by most candidates. A few plotted the 13% anti-clockwise from the 0 however the order of the key and the slices showed that this should have been added to the 68% point to plot at 81% which was correct. Some plotting was inaccurate ranging from 80% to 83%. Shading was occasionally incorrect with responses ignoring the horizontal lines shown in the key; some were at 45 degrees so could not be credited. Candidates should be aware that pie graphs should be plotted as shown in the order of the key provided.

(c) (i) Credit was awarded here to candidates who placed or put the quadrat on the ground, used the square to work out the percentage of small squares covered in vegetation and then considered taking an average either at each site or overall. Few candidates covered all three points required though many included two points. Some responses were vague on the use of the quadrat e.g. work out the vegetation cover, check the amount of vegetation cover, measure the length of the vegetation in the square.

(ii) The plot at 65% was completed successfully by almost all candidates. There were a few at 70 or 60 and some candidates did not attempt this question. A small number plotted with crosses instead of a bar which could not be credited. A few did not attempt the plot.

(iii) Again almost all plotted the 3 species correctly; a few read the wrong axis using the vegetation cover axis instead so plotted the 3 very low down for no credit.

(iv) Almost all candidates made a correct judgement by deciding that this Hypothesis was correct. They then backed this decision up with data evidence by comparing the graphs or the tables provided. There were several different and valid ways of comparing these statistics. Most chose to compare the highest percentage of vegetation in both areas and the number of species at comparative sites. A few worked out how many times, for example the species number was above or below 3 in each area. Some calculated average scores of vegetation cover and species. A few chose to only compare several individual sites that worked with the Hypothesis; it was more valid to make an overall judgement from several sites. One error made by some candidates was to add the total number of species and compare that total in each area. One area could have had several species with a low total score; the other could have a high total score with a limited number of species. Overall though this was a well done question.

(d) (i) Most candidates realised that using three different groups at three different times on three different days at three different distances from the sea created so many variables that the results would be unreliable. Candidates needed only to state two of these faults for credit. A number mistakenly referred to the different amounts of people that might be present at different times and days thereby limiting the number that could answer questions but this was a bi-polar survey not a questionnaire. The variation in people was only relevant with regard to the presence of litter and noise in the survey as the other factors did not need people to be present to make a judgement. Other answers such as ‘weather might change’ gained no credit though the fact may be true unless an explanation covered why this might make the results unreliable.

(ii) This was well done by almost all candidates which was very pleasing. It should be noted that, while the technically correct answer would include plus and minus, the international convention that a plus symbol is not needed for a positive number was applied to the benefit of many candidates. Of course the minus sign had to be there for credit though.

(iii) These were five difficult plots yet most candidates did put their crosses in the middle of the correct square and joined them with accuracy for both marks. A few misplotted the points or drew several lines that did not connect which was odd given there were two other completed graphs provided to show the order in which all plots should be connected.

(iv) While the majority of candidates recognised that the Hypothesis was wrong and then went on to quote the two contrasting environmental scores of –7 and +8, which showed that the impact of people decreased away from the dunes, a number agreed with the Hypothesis despite all the evidence suggesting they should have disagreed with it. It may have been the case that they did not understand the significance of minus and plus bi-polar totals. A few stated that the –7 meant it was a negative score and +8 a positive score but did not go on the explain what this meant for the impact of people i.e. higher near the beach and lower further away.

(e) The question required candidates to suggest ways in which the sand dunes and vegetation in Photograph A could be protected from visitors. This sub-section was the least-well answered on **Question 1**. It was disappointing to see some rather negative and extreme ideas being suggested such as banning people and their animals from the area, imposing heavy fines on offenders regarding litter and smoking, banning all barbeques and picnics and employing security guards and police, in some case armed, to patrol the dunes. The majority of candidates did suggest sensible constructive ideas that would still enable visitors to enjoy the area such as creating more reinforced or designated paths, putting up signs, fencing off areas, employing guides or rangers to give walks and monitoring the impacts, creating designated picnic and barbeque areas. Quite a number gave vague ideas such as limiting access (How?). Some suggested creating car parks but Photograph A shows that there are bollards on the beach to prevent access by vehicles to these dunes. The dunes pictured are clearly of such a scale that imposing charges and limiting numbers would be impractical solutions.

Question 2

(a) (i) There were very few candidates who did not gain full credit on this ranking exercise; a small number did rank the areas in the wrong order or just wrote them out as a sentence across the four rows but, overall, this was one of the most successful questions.

(ii) Most candidates now seem quite confident with completing divided bar graphs. There were some misplots at 100 and the 202 line was sometimes placed the wrong side of 200 but most were accurate with the correct three shadings based on the provided key. A significant number of candidates did not attempt to plot the graph.

(iii) The key to success with this question was to recognise that it asked for two 'main differences' which eliminated minor differences such as the comparative amounts used for washing or preparing food and drinks. The question was about the use of water so statements relating to the fact that there was no dishwasher in the village were not credited. Some candidates gave comparative figures without any comparison; using words such as 'only' would be credited to indicate which was higher. Most referred to the overall higher water use in Delhi and then chose one of the four acceptable main differences from the key.

(b) (i) The most common method given was systematic sampling with candidates adding that it gave regular patterns such as every 5th house. Some suggested every 10 metres which was not a realistic sampling distance as it would involve every house so it was not credited; a higher more realistic distance could be credited. Random sampling using a random number generator to choose numbers of houses was a popular second choice. A few candidates suggested the stratified sampling method but couldn't really describe how it could be applied in the context of sampling 20 houses from each village.

(ii) This was done well. Answers suggested that the villagers might not want to fill in the questionnaire or might not know the distances involved in trekking to the water supply or the amount they collected. Language and literacy issues were also stated as was the likelihood that some villagers might not be able to complete the questionnaire. Answers that were not credited included ideas such as the cost of printing questionnaires and the time to distribute them.

(c) (i) Bacharna was plotted quite accurately on most graphs; it was important to realise that the plot needed the village name by it to match the other plots to make sense when references were needed to the village in the later questions. A significant number of candidates did not attempt this question.

(ii) This proved difficult for many candidates although most attempted it. Once Bacharna was plotted the most obvious positive relationship shown by a best-fit line would go through Anganwa, Lolawas, Modijoshiyan and Bacharna with Kalijal and Soorpora as two clear anomalies or outliers. Quite a few candidates did recognise this pattern and used comparative data of distance and time from a pair of the four villages to demonstrate a positive trend e.g. Anganwa and Bacharna. They also quoted data from one of the anomalies to illustrate why it did not fit the positive trend. A few candidates mistakenly used Kalijal to illustrate a positive trend but, as that was an anomaly, it was not eligible to prove a positive relationship for the Hypothesis and then also be used to illustrate why the Hypothesis was only partly correct.

(iii) As with the Bacharna plot in **(ii)** above. the plotting of Kalijal was done well with the only problem being those candidates who did not add the village name by the plot as shown by the other plots. Again a significant minority of candidates omitted this question.

(iv) Many candidates did well here in that they correctly judged that the Hypothesis was false or incorrect and that there was no relationship or correlation between the time spent collecting water and the amount used. The best answers were those that gave named examples of villages where the amount collected was high and the distance travelled was relatively low and vice versa with comparative statistics to illustrate why the Hypothesis was not true. Some candidates carried out a ranking exercise to determine whether there was any positive relationships based on the same ranking for the two variables which was an interesting and valid approach. A few candidates just copied out all the data from the table without any comparative analysis.

(d) (i) This was well done by almost all candidates who correctly chose Bacharna.

(ii) This was also well done by most candidates who correctly chose Lolawas.

(iii) There were some pleasing comparative answers here with suggestions that Soorpora might be more developed and richer as it had taps and pumps while Bacharna might be relatively poor but had a river close by and more rain than Soorpora. Candidates did not get credit for describing the differences in the table which a few did; they were asked to suggest reasons for the differences.

(iv) Many candidates suggested that common problems in these two villages could be that the water was polluted or not clean which might lead to diseases such as cholera. Candidates were also mindful that the villages could have suffered from drought or seasonal rainfall or unreliable rainfall causing wells and rivers to dry up or have a low volume of water. A number of candidates did not attempt this final sub-section which may have indicated a time issue.

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 answer 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 listing comparative statistics.
If comparing statistics, it is important to use paired data rather than one set on its own.
Check you are using the resources that a question refers you to, e.g. *Support your answer with evidence from Table 1 and Fig. 2.*
Attempt all completion tasks on graphs, tables or diagrams – not all the answers are on lines and in writing. Many candidates are missing out on relatively easy marks by not attempting these questions.
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 or pen as scripts are scanned for marking and light colours do not always show up. Always shade bar graphs and pie charts accurately.
When you think you have finished, check that you have not missed a question out. Some questions are hard to find if they are on pages with a lot of graphs or maps. Make sure you have answered the questions on every page. This applies specially to questions where you are asked to complete tables, diagrams, graphs or maps.

General comments

Most candidates found this examination enabled them to demonstrate what they knew, understood and could do. The overall range of marks was similar to previous years – with weaker candidates scoring on the practical questions, such as drawing and interpreting graphs and tables, and candidates of higher ability scoring well on the more challenging sections requiring explanation and judgement especially regarding hypotheses. There was little overall difference between the standard of candidates' answers to the two questions.

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. This is an on-going problem from year to year and had been mentioned in previous reports to Centres. Although there were no significant reports of time issues some candidates do write too much in some sub-sections. They should be encouraged to answer more succinctly and perhaps give more thought to their answers. Most points for teachers to bear in mind when preparing candidates for future Paper 43 questions relate to misunderstanding or ignoring command words and the use of appropriate fieldwork techniques and equipment. Particular questions where candidates did

not score well often related to them not carefully reading the question, for example question **2(e)(ii)** where some candidates described a fieldwork task using a questionnaire. As in some previous papers questions **1(f)(ii)** and **2(e)(ii)** required candidates to describe suitable investigation methodologies to extend their fieldwork. Such questions are frequently included on this paper and are an area which Centres should practise with candidates. However, it is not good practice to develop a series of generic improvements which may apply to all fieldwork as such suggestions tend to be vague and not worth credit.

Centres should 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 know appropriate fieldwork techniques even if they have only limited opportunity for fieldwork within the Centre. For example, questions **1(c)**, **1(e)(ii)** and **2(a)(iii)** focused on specific techniques commonly used in fieldwork. Centres are encouraged to carry out basic fieldwork with candidates, especially using simple techniques which can be done on the school site or in the local area.

Comments on specific questions

Question 1

(a) Most candidates identified the river features correctly. The most common errors were to identify feature A as the confluence and feature B as the tributary.

(b) Candidates are generally aware of the idea of doing a pilot study. However, answers varied in detail. The best candidates explained how a pilot study gave the opportunity to test fieldwork equipment and to check methodology and avoid possible errors. Some answers also referred to the benefit of working with other members of a group. Weaker candidates gave vague responses about saving time and making sure they would be safe. A misunderstanding of some candidates was that the pilot study would be conducted on the same river as their fieldwork, although the question states a 'local stream'.

(c) The question discriminated well. Some candidates ignored the photograph showing the methods of measurement being used and wrote more general answers, possibly based on their own fieldwork. The best answers described what they could see in the photographs. Detailed answers made reference to stretching the measuring tape across the river to ensure it was tight, and making sure that the ruler was vertical and touched the river bed when measuring depth. Weaker candidates made errors such as referring to the 'ends' of the river rather than the sides or the banks, and stating that a ruler was used to measure the width.

(d) (i) Most candidates plotted the first point accurately. Some candidates made an error in plotting the second point because they measured its position from the bottom of the section instead of from the top. A small number of candidates did not shade their completed cross section.

(d) (ii) Most candidates identified site 4 as the meander, although some mistakenly identified sites 3 or 5.

(d) (iii) Most candidates agreed or partially agreed with the hypothesis. The use of data often discriminated between the quality of answers. Candidates needed to give accurate data for two sites to show the change downstream. Candidates who concluded that the hypothesis was partially true gained credit by identifying an anomaly and again using paired data from two sites to illustrate why the width measurement at that site was an anomaly.

(e) (i) Many candidates did recognise that judgement of pebble roundness would be subjective. Some also realised that the classes would be hard to distinguish. Weaker answers suggested that the answer would be inaccurate or that the pebbles would not fit into any category.

(e) (ii) This question was challenging. Better candidates realised that selecting pebbles at random may be biased or give an unrepresentative sample because they were selected from the same part of the river cross section. Weaker candidates were vague in their answers. Typical responses referred to wasting time, that results would be inaccurate, and that it was difficult to pick pebbles up.

(e) (iii) Most candidates completed the divided bar graph correctly. Where candidates failed to score marks, it was usually because they put the segments in the wrong order rather than plotting their size incorrectly.

(e) (iv) Most candidates correctly calculated the statistics.

(e) (v) The question was a challenging one which discriminated well. Weaker candidates became too involved in comparing individual scores rather than comparing total scores from the five sites. Better candidates recognised that the results contained anomalies as the conclusion to the hypothesis was partly true. As in previous questions the use of paired data was important in identifying both the general trend and anomalous results.

(e) (vi) Most candidates showed some understanding of why bedload becomes more rounded downstream. They referred to erosion and better candidates developed this idea by identifying that attrition would be the principal type of erosion involved.

(f) (i) Most candidates made the correct choice of callipers. Clinometer and quadrat were popular distractors. A significant number of candidates erroneously picked two pieces of equipment.

(f) (ii) The question discriminated well. Better answers usually referred to measuring at different sites downstream, measuring the length or long axis of the pebbles, using systematic sampling to select pebbles and measuring several pebbles in order to calculate an average size. Weaker answers did not refer to an average or identify what dimension of the pebble would be measured. These answers focused on repeating measurements and recording results with no specific details.

Question 2

(a) (i) Most candidates identified the importance of only asking tourists to complete the questionnaire in order to get relevant and reliable results.

(a) (ii) Although most candidates correctly named systematic sampling there were many incorrect responses including random, stratified, strategic and sampling.

(a) (iii) The question discriminated well. Candidates who referred to lack of bias and it being a quick method as no preparation was needed scored both marks. Common errors were to suggest that sampling would give a representative group of people, and that people were selected at random.

(b) (i) The plotting of two arrows proved to be quite challenging. 8 per cent of candidates did not attempt the question and some candidates wrote the figures on the map rather than drawing arrows. Most answers were within acceptable tolerance and correctly positioned on the map. An error made by a significant number of candidates was to draw the arrows pointing in the wrong direction.

(b) (ii) Most candidates identified that the bar graph allows numbers or exact figures to be read or compared. Better candidates also referred to the map showing pattern or distance or location as an advantage. Vague answers only suggested that the map was visual.

(b) (iii) Most candidates correctly agreed with the hypothesis and gave appropriate supporting evidence. This was usually done by identifying China and Thailand as the main countries where tourists came from, and comparing these with the highest totals from non-Asian countries. Weaker candidates did not use statistics or added up totals from the bar graphs inaccurately.

(c) (i) The majority of candidates plotted the two bars correctly. Errors were usually made by misinterpreting the scale or shading the bars incorrectly.

(c) (ii) The question discriminated well between candidates. A significant number thought that the hypothesis was true because they did not look at the main pattern which shows that most visitors in all age groups mainly came for two main reasons, to visit heritage sites and to see traditions. Candidates who correctly identified the hypothesis as false used data well to support their reasoning.

(d) (i) Most candidates plotted the segments of the pie graph within tolerance. The most common error was to reverse the order of the segments so that they did not match the order of the other pie graphs.

(d) (ii) Whilst many candidates gained some credit for their answer many only scored one mark by writing statements which by themselves were not comparative and required the examiner to make the

comparison. Many candidates scored two marks by using statistics and the word 'only' to make a valid comparison. Good answers also compared by referring to 'more' or 'a higher percentage'.

(e) (i) This question was generally well answered and there were many answers which scored full marks. Candidates scored better on disadvantages than advantages, usually referring to varying forms of pollution, litter and traffic problems. The main advantages suggested were to do with employment, money brought into the area, and local cultures and traditions.

(e) (ii) The final question was challenging and again identified differences in candidates' appreciation and understanding of fieldwork investigation. Few candidates gave a clear topic to study. Often, they referred to 'impact on the natural environment' rather than a specific impact. These answers then lacked a focus for the methodology. Most answers included ideas for fieldwork but they were often a list of methods such as counting or using a bi-polar analysis or taking photographs without any development in the context of a particular investigation. A significant number of candidates ignored the instruction not to refer to a questionnaire. Suggested topics for investigation included deforestation, air quality, litter and water pollution.