

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 three 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

have the correct equipment for the examination including a ruler and a calculator

respond in the correct way to command words used in questions – for example, ‘describe’; ‘suggest reasons’; ‘explain’

identify the correct focus specified in the question stem – for example, causes or impacts; problems or strategies; local, national or global; environmental or social

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

use the mark allocations and answer space provided in the question and answer booklet as a guide to the length of answer required and the number of clear points that need to be made

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 population pyramids, graphs, data tables, photographs, text, diagrams 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 evidence is given where required to support an answer and that best use is made of the information provided, such as the compass, scale and key on maps. Practise the skill of describing the features or characteristics from a photograph

if the rubric of a question instructs candidates to base their answer only on the information in a given figure, then answers that do not relate to that resource should not be included as they will not gain credit

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 (for example, to provide locational 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 a candidate to compare

ensure knowledge of physical processes and an ability to explain a process, using key terms and clearly sequenced ideas

write in detail and develop ideas in five mark questions 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. Candidates should continue answers on the specified continuation pages rather than inside the answer booklet or on extra sheets of paper.

General comments

The examination was considered appropriate for the age and ability range of candidates and it differentiated effectively between candidates of all ability levels. The most able and well prepared candidates performed well across the paper and a number of excellent scripts were seen. There was clear evidence of good understanding and thorough revision. Candidates seemed to have sufficient time to complete the paper. However, the final parts of the later questions were not always completed with sufficient detail.

Most candidates followed the rubric by selecting a question from each section as required. Occasional rubric errors were still seen and a reminder to candidates to answer one question from each section is always helpful. Where candidates answer every question, this compromises the time available for each question and disadvantages them.

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

Questions 1 and 4 were the most popular questions, whilst **5 and 6** were equal in terms of question choice. There were good answers seen to all questions, including those requiring extended writing. The case study questions that were answered the most successfully were the characteristics of tropical rainforest ecosystems and methods of water supply. High quality answers in these case studies were characterised by developed ideas with some clear place detail. Weaker responses tended to be characterised by the use of simple, brief statements. In some cases, a significant amount of detail included by candidates was not relevant to the question being asked, and too often long introductions occupied much of the answer space. An area for improvement for some candidates would be maximizing the marks scored on the **part (c)** questions.

Case studies require place specific information to allow candidates to access the highest level. This requirement can vary between questions – for example, a country (**Question 1**) or an urban area (**Question 2**) or a coastal area (**Question 3**). Candidates should carefully consider their choice for each question ensuring that they select an appropriate example at the correct scale and also that they have included relevant place specific detail.

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 generally more popular than **Question 2** with more candidates attempting this question.

- (a) (i) The vast majority of candidates correctly chose the right answer here.
 - (ii) Most candidates placed the countries in the correct rank order.
 - (iii) This question differentiated well. Most candidates were able to suggest reasons such as the idea that Mexico is closer. However, fewer candidates considered the idea of the need to travel by sea or air or the cost of travel. Many candidates made the error of explaining why more candidates will migrate from an LEDC than an MEDC, rather than using the evidence in Fig. 1 only.
 - (iv) This question was well answered and candidates gave a whole range of answers focussing on the difficulties faced by immigrants. There were, however, four marks available here and candidates needed to ensure that they described four different difficulties to gain full marks here.
- (b) (i) This question differentiated well and stronger responses considered the overall changes seen in the graph, together with accurate statistics with units to support their answer. Weaker responses did not describe the overall changes in the graph and many did not state that there had been an increase overall or identified the clear decrease followed by an increase with relevant years. Many failed to use units (millions) in their answer.

- (ii) This question differentiated well and there were some high scoring answers which considered the challenges presented by large numbers of immigrants. Some candidates, however, gave simplistic answers such as 'more crime' or 'disease' which did not gain credit. Crime might arise from high unemployment and a need to support the family, but this needs to be fully developed in a balanced answer for credit.
- (c) This was a straightforward case study and differentiated well. The strongest responses selected appropriate case studies such as China, Singapore or France and described the policies in depth. Often, however, candidates described in detail how successful the policy had been which did not gain any credit here. The policy also needs to be clearly identified and supported by place specific detail to fully access marks here. Candidates also need to avoid the use of an overall introduction providing context and instead need to concentrate on answering the question as set.

Question 2

This question was less popular than **Question 1**.

- (a) (i) The majority of candidates used the pie graph to identify the correct percentage.
- (ii) Few candidates answered this question well and simply described the issue, such as 'lots of cars', rather than extending their answer sufficiently to explain how traffic and industry cause air pollution.
- (iii) Candidates needed to clearly compare the sources of air pollution here and this was perhaps more easily achieved using words rather than listing all the statistics. However, either approach was acceptable. If statistics are used, they need to be accurate and include the correct units, in this case percentages.
- (iv) This question differentiated well. Most candidates were able to suggest that a difference in level of development was a main cause of the contrasts seen, and the more perceptive extended their answers beyond this idea by making comparative references to the numbers of vehicles and factories, for example.
- (b) (i) Most candidates correctly identified the relationship as a positive one and many identified the fact that there are anomalies. Statistics, however, were not always used well here to support the answer, with some candidates providing a whole range of inappropriate data rather than using figures simply and well to support their answer.
- (ii) Many candidates were able to explain some of the problems caused by traffic congestion. Most correctly suggested the issues of air and noise pollution, although once again the specific type of pollution needs to be clearly identified by all candidates, in this case air and noise pollution. Ideas such as the fact that urban populations are growing rapidly or limited investment in public transport or new roads were considered less often.
- (c) This question discriminated well. Stronger responses described named strategies to combat traffic congestion using relevant locational detail. However, many candidates described strategies such as congestion charging very simply and failed to develop their answers with sufficient detail to achieve L2 statements. Candidates needed to describe the strategies rather than explain the benefits of them.

Question 3

This question was less popular than **Question 4**.

- (a) (i) Most candidates correctly identified the landform; however, some suggested it was a beach or a spit and did not look at the feature labelled X on the photograph.
- (ii) Many candidates were unable to describe two characteristics of the landform shown on the photograph and need to further develop this skill.
- (iii) Stronger responses gave a very full explanation of the formation of sand dunes, particularly transportation by wind, an obstruction and subsequent deposition. However, some candidates instead gave an answer which described the process of longshore drift and the formation of the spit, and so had not read the question carefully.

- (iv) Many candidates correctly identified longshore drift as the main process here; however, answers often lacked detail. Candidates could name swash and backwash but they did not explain fully how these lead to the formation of the spit, for example, that swash approaches at an angle and backwash returns straight out to sea leading to an overall zigzag movement along the coast. Many candidates identified the hooked nature of the spit but did not explain how this was formed.
- (b) (i) Many candidates identified the landforms correctly. However, some incorrectly suggested a stump rather than a stack and a large number of candidates failed to identify the wave cut platform.
- (ii) Many candidates understood the question and described the processes of coastal erosion very well. However, this is a five mark question and some candidates did not consider enough processes to access full marks. Weaker responses described the formation of a cave, arch and stack rather than describing the processes of coastal erosion.
- (c) Excellent answers based on detailed case studies gained full marks here. However, some candidates did not read the question carefully and so explained how the protection strategies worked, along with their benefits and disadvantages, rather than describing the actual techniques used. Good descriptions gave details of how the strategies are built, the materials used, and the specific locations or they outlined the cost of the strategies used.

Question 4

This was a popular question and was answered by a significant number of candidates.

- (a) (i) The majority of candidates chose the correct option here.
- (ii) Most candidates correctly suggested the difference that one is inland and one is on the coast; however, many did not correctly identify a similarity. Many just stated they were both in Africa or South Africa when 'Southern Africa' was required. Some candidates referred to rivers which did not clearly describe the location of the deserts.
- (iii) Whilst many candidates were able to explain that a lack of cloud at night allows heat to escape, answers were often not fully developed beyond this idea. Candidates needed to state clearly that there are high temperatures during the day and cold night temperatures or they needed to explore the fact that the lack of cloud allows high insolation during the day.
- (iv) Responses to this question were mixed. Whilst there were some good answers explaining why the desert does not receive much rainfall, most candidates simply explained that it is an area of high pressure on the Tropic of Capricorn and seldom gave a fuller explanation, such as the air cooling as it descends or the impact of the cold current.
- (b) (i) The majority of candidates gained full marks here, though weaker candidates failed to draw clear comparisons between the cactus and the tree in the diagram.
- (ii) Stronger responses explained a variety of adaptations of plants and animals, particularly in terms of how they store water or reduce transpiration. Whilst named species were not required, some candidates failed to explain clearly how plants and/or wildlife have adapted. Simple statements such as 'they store water' were not considered to be sufficient explanation here.
- (c) Excellent answers based on detailed case studies describing the flora, fauna and climate gained full marks here. However, some candidates did not read the question carefully and so explained how the different characteristics of tropical rainforests work rather than describing the characteristics. Specific details included accurate climate data or, for example, heights of emergent trees. Few candidates described the nutrient cycles or food chains where specific species would have gained credit. Some answers also detailed impacts of deforestation which was not answering the question set.

Question 5

Responses to **Question 5** and **Question 6** were quite balanced in terms of numbers of candidates answering them.

- (a) (i) The majority of candidates correctly completed the bar graph.

- (ii) Most candidates correctly suggested two renewable energies. Weaker responses incorrectly suggested HEP, which is already on the graph, or nuclear energy.
 - (iii) This question differentiated well. Stronger responses were able to clearly compare the use of the different energy types. However, some candidates did not draw clear comparisons, which can be similarities as well as differences. Again, candidates need to ensure they use the correct units of measurement when giving statistics, in this case petajoules.
 - (iv) Good answers focussed on concerns such as the cost of building the nuclear power stations or worries over the disposal of waste or radiation. Weaker responses wrote generally about the expense or the 'danger of explosions'. The question was about nuclear power and so the availability of other fuels was not considered relevant here.
- (b) (i) This question discriminated well with some excellent answers referring to the positive relationship between GDP per person and electricity used. The anomalies or the fact that the relationship is not perfect were also often correctly identified. Two statistics were needed for each of two relevant countries to illustrate the relationship; however, some candidates did not use the correct units in their answer.
- (ii) This question discriminated well. Many candidates suggested that the use of home appliances leads to a higher energy demand. However, candidates often did not extend their answer further, for example, to consider the impact of industry upon energy consumption or that higher GDP will lead to more investment in power stations and supply infrastructure, particularly in rural areas. Candidates need to develop a number of ideas to access more marks rather than repeating the same idea. Weaker responses also suggested 'improved technology' or the use of 'more luxury items', but did not develop their response beyond these general ideas and so did not gain credit.
- (c) Where candidates understood that the question was about water supply in a named country, they made a variety of valid developed points describing a number of water supply schemes in their chosen country, including reservoirs and water transfer, together with detailed descriptions of water conservation schemes or desalination. Some excellent responses considered Singapore and the Four National Taps. At times, however, little place detail was seen and weaker responses stated simple ideas such as building dams or desalination without fully developing their ideas here, or focussed on HEP rather than water supply.

Question 6

Responses to **Question 5** and **Question 6** were quite balanced in terms of numbers of candidates answering them.

- (a) (i) Most candidates answered this well and gave a clear definition of subsistence farming.
 - (ii) This question was answered well by most candidates, particularly the idea of wood or branches on the ground and the tree stumps. Some candidates, however, did not look carefully at the photograph.
 - (iii) Answers were varied and the question discriminated well. Many candidates correctly suggested that heavy rain would wash away the soil: however, they needed to consider the lack of interception or roots to hold the soil or other relevant ideas to access full marks here.
 - (iv) Most candidates answered this well and gave four distinct strategies used to reduce soil erosion.
- (b) (i) Candidates needed to look carefully at the photograph to identify actual examples of the sources of air, water and noise pollution. This question was not well answered by the majority of candidates.
- (ii) A variety of answers was seen with candidates explaining a number of ways in which pollution threatens the local natural environment. Ideas were often well developed here. A number of candidates, however, wrote about impacts on people or the global rather than local environment and so did not gain credit. This is an example of where it might be helpful if candidates underlined the key words in the question stem to ensure they address the question set.

- (c) Some excellent responses to this question were seen, using a number of different examples with clear place specific detail, whether named species, locations or relevant statistics. Candidates could choose appropriate examples from across the world to answer this question. Weaker answers, however, tended to repeat the same idea several times rather than developing three discrete ideas. As with **Question 6(b)(ii)**, some candidates considered impacts on people rather than the natural environment.

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 three 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

have the correct equipment for the examination, including a ruler and a calculator

respond in the correct way to command words used in questions – for example, ‘describe’; ‘suggest reasons’; ‘explain’

identify the correct focus specified in the question stem – for example, causes or impacts; problems or strategies; local, national or global; environmental or social

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

use the mark allocations and answer space provided in the question and answer booklet as a guide to the length of answer required and the number of clear points that need to be made

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 population pyramids, graphs, data tables, photographs, text, diagrams 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 evidence is given where required to support an answer and that best use is made of the information provided, such as the compass, scale and key on maps. Practise the skill of describing the features or characteristics from a photograph

if the rubric of a question instructs candidates to base their answer only on the information in a given figure, then answers that do not relate to that resource should not be included as they will not gain credit

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 (for example, to provide locational 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 a candidate to compare

ensure knowledge of physical processes and an ability to explain a process, using key terms and clearly sequenced ideas

write in detail and develop ideas in five mark questions 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. Candidates should continue answers on the specified continuation pages rather than inside the answer booklet or on extra sheets of paper.

General comments

The examination was considered appropriate for the age and ability range of candidates and it differentiated effectively between candidates of all ability levels. The most able and well prepared candidates performed well across the paper and many excellent scripts were seen. There was clear evidence of good understanding and thorough revision. Candidates seemed to have sufficient time to complete the paper. However, the final parts of the later questions were not always completed with sufficient detail.

Most candidates followed the rubric by selecting a question from each section as required. Occasional rubric errors were still seen and a reminder to candidates to answer one question from each section is always helpful. Where candidates answer every question, this compromises the time available for each question and disadvantages them.

Questions 1, 4 and 6 were the most popular questions. There were good answers seen to all questions, including those requiring extended writing. The case study questions that were answered the most successfully were about population policies, the causes of flooding and food shortages. However, excellent answers were seen to all six. High quality answers in these case studies were characterised by developed ideas with some clear place detail. Weaker responses tended to be characterised by the use of simple, brief statements. In some cases, a significant amount of detail included by candidates was not relevant to the question being asked, and too often long introductions occupied much of the answer space. An area for improvement for some candidates would be maximizing the marks scored on the **part (c)** questions.

Case studies require place specific information to allow candidates to access the highest level. The requirements can vary between questions – for example, a settlement (**Question 2**), a volcano (**Question 4**), a river (**Question 3**) or a country (**Question 1**). Candidates should carefully consider their choice for each question ensuring that they select an appropriate example at the correct scale and also that they have included relevant place specific detail.

The following comments on individual questions will focus upon strengths and weaknesses of responses 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**.

- (a) (i) Most candidates read the bar graph correctly. The most common error was 100 000.
- (ii) Many candidates did not explain the terms with sufficient clarity. They missed out the key idea that the terms referred to the difference between birth and death rates, and the difference between immigration and emigration.
- (iii) Many candidates scored full marks though some only identified the first year correctly, not reading the graph correctly for the second year (2005 being a common error) and the third year when 2012 was frequently suggested.
- (iv) As usual with questions on this topic candidates scored well, many gaining full marks. Many different suggestions from the mark scheme were included in answers, the use of contraceptives, education about family planning and the importance of women having careers being very common responses.
- (b) (i) This was a demanding skills question which required accurate interpretation of the scale. Some candidates wrote at length but without clearly comparing the two regions over time. They wrote about each line separately and gave the population at different dates for Europe and Africa. Statistics were used by most candidates with different degrees of accuracy and some omitted to provide the units – billions. As the question related to population growth, it was disappointing to read so many responses that only compared the total population in one year, for example, in 1950, rather than looking at growth over a period of time.

- (ii) This question was accessible to all and the majority scored well. Better responses tended to give succinct and precise answers, whereas weaker answers included vague ideas which by themselves were not worth credit, for example, there are poor services, poor resources, more traffic, crime, low quality of life, etc., rather than clearly stating the problems that are likely to occur with increased population growth. A small minority gave the reasons for population growth in Africa, rather than potential problems it could cause.
- (c) There was a variety of case studies, but the most popular and successful example was China. Within this example the quality of answer varied enormously. The best responses realised that there were two parts to the question and devoted roughly equal time and space to description and evaluation. However, some described features of the one child policy in great detail with less focus on its relative success whilst others focussed on evaluation at the expense of description. Nevertheless, excellent references were seen to how the policy worked and its effects on female infanticide, imbalance of gender and the impact on overall growth of the population. Other popular examples of population policies were from Russia, France and Singapore. Some were impressive but many did not contain the same detail as answers on China and were characteristically weak on evaluation of the policy. Some candidates wrote lengthy introductions to their response about the historical reasons for the policy. This did not gain credit, but simply wasted time and space at the expense of including relevant detail.

Question 2

This was not a popular question, but a small number of the responses were of a high quality.

- (a) (i) Most candidates identified the correct statement.
- (ii) Candidates could usually describe the relationship but many did not give examples of settlement types to illustrate it.
- (iii) Answers varied in quality. Many suggested services which were not sufficiently 'high order' such as churches, schools, supermarkets and banks. Few candidates suggested more than one acceptable example.
- (iv) Answers varied in quality and the question differentiated well. Better responses referred to large population size, sphere of influence, wealthy residents and meeting the threshold population. They showed good understanding of the terms.
- (b) (i) Nearly all candidates gave three appropriate examples.
- (ii) This question also differentiated well. The most common ideas suggested were migration to cities, fewer people in rural areas and subsequent decline in demand which resulted in rural services becoming unprofitable. Too many candidates referred to shops 'moving to urban areas' and another common response was that services 'could not find workers'.
- (c) Many candidates did not understand the term 'function' but continued to focus on service provision with lists of services or named examples of places in cities, such as shopping malls and sports venues, with no relation to the function of the settlement. Valid answers were usually restricted to simple ideas and little development was seen. Very few answers focussed on a specific function, for example, port, market town, tourist resort, which allowed explanation of why it developed in the settlement. Some simply wrote about the settlement in general terms with little or no regard to what the question asked.

Question 3

This was less popular than **Question 4**. However, many excellent answers were seen.

- (a) (i) Most candidates chose 'confluence' but the three distractors were also chosen.
- (ii) Most candidates identified that the river was fast flowing, shallow or contained rocks. There was considerable confusion about whether the river was wide or narrow and had a steep or gentle gradient. The many references to features other than the rivers, for example, vegetation, were not relevant.

- (iii) Candidates found this question difficult. Whilst many were able to identify fast flowing water, few mentioned high levels of energy. Far too many simply described one or more erosional processes without really answering the question.
- (iv) Most candidates scored well. The most common suggestions were that the river was wider and deeper, flowing in a wider valley with a decreasing slope gradient. Better answers also contained ideas about velocity increase and smaller sediment size/increased overall load. A common error was that the velocity of the river would decrease rather than increase. Another misconception was that the river would become straighter in its lower course.
- (b) (i) Most candidates correctly identified some features from the photograph. The plunge pool, undercutting and the steep drop were the most popular ideas. Few suggested that the waterfall widens as it gets lower or that there is a double/stepped waterfall. Many candidates referred to a gorge or vegetation, features which were not valid as the question asked about features of the waterfall.
- (ii) This was another question which discriminated well. High quality answers made reference to the hard and soft layers of rock, understanding the differences in resistance to erosion. Most answers were communicated in a logical order, and good use was made to link text to the diagram that they had drawn. Although there was no reserve for the diagram, it often enhanced the response and where well annotated helped to take candidates to full marks. Weaker responses were characteristically vague and some only scored a mark for some reference to a type of erosional process.
- (c) The River Ganges was the most common case study. This was also the one that consistently scored higher marks. Good answers included developed ideas about deforestation, heavy rainfall, melting glaciers, low lying land and urbanisation in the catchment. The River Elbe was another common example, as was the Mississippi. These examples tended to include fewer reasons for the cause of the flooding. Some answers focused incorrectly on the effects of flooding; this was particularly true of case studies from the UK. When the question asks for a specific feature, such as the name of a river, this is necessary for full marks. Many candidates who referred to flooding in Boscastle, for example, did not name the river responsible for it, the Valency.

Question 4

This was a popular question.

- (a) (i) When definitions are required candidates should define all parts in italics, not just one of the words. They should not use one of the italicised words or a derivative of it. Many candidates referred to volcanoes (the 'fire' idea) but re-used the word 'ring' rather than using a phrase like 'around the Pacific'.
- (ii) Many candidates scored one mark by making the comparison between location in the middle of the plate and on the edge of it. Few made a clear second comparison. North and south of the Equator was a common acceptable choice, but many negated their point by referring to 'above' and 'below' the Equator. This is not creditworthy in a Geography exam; north and south are the terms that should be used.
- (iii) Where candidates wrote about the appropriate plate boundary they scored well with accurate and well sequenced explanations. A significant proportion of candidates confused convergent and divergent processes and so failed to score.
- Simplistic references to 'plates colliding' are not acceptable.
- (b) (i) The question achieved good differentiation. Most candidates identified the increase in number, but some did not describe the stability in the early years, focussing only on the low number which did not describe change. Some candidates used statistics without interpreting them and describing the changes. Only the best responses were able to differentiate the rate of increase between the earlier and later years.
- (ii) Many candidates gave several ways to reduce the impacts, commonly describing building features, evacuation plans, drills and sometimes specific safety measures against volcanoes. There was some repetition of monitoring or prediction which was not required.

(iii) Many candidates repeated ideas from the previous section and provided they put their ideas into the right context they gained credit. The quality of answer usually varied according to the level of detail given about the various measures taken or not taken.

(c) Common examples included Etna, Sinabung, Pinatubo, Soufriere Hills, Mauna Loa and Eyjafjallajökull (although the latter three were often named as Monserrat, Hawaii and Iceland and so failed to score full marks). If candidates give more unusual examples, that is quite acceptable; however, it is important that they learn the facts accurately and make sure that they are accurate.

Good answers developed their references to ideas such as to jobs from tourism, mining, geothermal power and agriculture. Many weaker responses gave several reasons but did not develop any of them in sufficient detail to score at Level 2. There are still candidates who inaccurately think that people live close because the land is cheap.

Question 5

This was slightly less popular than **Question 6**.

(a) (i) Although most candidates understood the term, they sometimes failed to gain credit because they repeated the idea of 'farming/farming' rather than defining it.

(ii) The question differentiated well between candidates who knew the term irrigation and those who did not and simply wrote about soil fertility. Candidates who understood the term usually scored two marks for the ideas of providing water and how it helps crops to grow.

There were no marks for repeating part of the question, i.e. '...increases the yield of crops'.

(iii) Generally, candidates related their answers well to the diagrams. They identified many of the answers in the mark scheme, most commonly referring to the level of technology, cost and the availability of manpower or cattle.

(iv) Candidates were mostly able to identify at least two methods, usually fertilisers and pesticides. Many gave one-word answers whilst others gave description, both approaches being acceptable in this case. Some candidates made the error of suggesting irrigation.

(b) (i) Although the question appeared to be straightforward, many candidates did not seem to know the meaning of the word 'process'. Some identified three types of farming, others suggested ideas such as grazing rather than focussing on processes carried out by the farmer.

(ii) This was an excellent discriminator. The best responses gave descriptions of diversification, spreading the risk, the use of animals for manure and the use of crop waste for animal feed/bedding and varied sources of income/work at different times of the year. In contrast, weaker answers focussed entirely on producing more, either to eat or to make more profit. These answers missed the idea of 'mixed' farming.

(c) Most candidates chose the Sahel or South Sudan and the Yemen. Some chose Syria and various countries in Africa, such as Swaziland. The best responses discussed not only drought, but also the impact of war including unexploded mines making fields inaccessible for food production. There was a lot of detailed information including names of militia. Indeed many wrote at length about the conflict but did not always manage to link this to food shortages. Weaker responses gave basic ideas such as drought means crops do not grow so there is a shortage. Overpopulation was a common reason suggested for African countries, but this was not developed well by many candidates.

Question 6

This was slightly more popular than **Question 5**.

- (a) (i) Most candidates identified one nuclear power station.
- (ii) Most candidates correctly named the two sources, a few incorrectly named nuclear as non-renewable.
- (iii) Many candidates found it difficult to give comparative answers. They often gave two separate descriptions of the sources and left it to the examiner to make the comparison. Many candidates scored one or two marks for referring to the varying importance of HEP and thermal power. Some referred simply to renewable/non-renewable without being precise about the actual sources of energy shown on the map.
- (iv) This question was not answered well, even by the more able. They did not explain the physical reasons why HEP is developed. There were many irrelevant answers about the economy, skilled workers and demand. Many candidates thought that HEP was produced from the sea. Candidates who referred to rivers often did not develop the requirement for large rivers or fast-flowing water. Mountains and high rainfall were suggested by some candidates but these were in the minority.
- (b) (i) Generally this was high scoring. Most candidates correctly named a pipeline and usually scored a mark for naming a start and finish point. Some candidates worked out correct distances and others referred to the pipeline 'going along the coast' for a further mark. References to dates, included in some responses, were not relevant.
- (ii) This question differentiated well. Common responses included the potential for conflict, reliance on another country and oil being a finite resource. Some candidates wandered off topic and focussed too much on economic problems generally in Mexico. Also some weaker responses stated that Mexico was supplying oil to the USA.
- (c) Many candidates did not immediately focus on a specific economic activity at a named location. These were often revealed later in the answer. Deforestation was often suggested as an economic activity with detailed explanation of its effects on the natural environment, but unless candidates identified an economic reason for cutting down trees, they were limited to Level 2. Many answers focussed on the Pearl River delta area, which gave scope for various environmental impacts. Some weaker responses included the effects on people.

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 three 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
- have the correct equipment for the examination including a ruler and a calculator
- respond in the correct way to command words used in questions – for example, ‘describe’; ‘suggest reasons’; ‘explain’
- identify the correct focus specified in the question stem – for example, causes or impacts; problems or strategies; local, national or global; environmental or social
- 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
- use the mark allocations and answer space provided in the question and answer booklet as a guide to the length of answer required and the number of clear points that need to be made
- 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 population pyramids, graphs, data tables, photographs, text, diagrams 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 evidence is given where required to support an answer and that best use is made of the information provided, such as the compass, scale and key on maps. Practise the skill of describing the features or characteristics from a photograph
- if the rubric of a question instructs candidates to base their answer only on the information in a given figure, then answers that do not relate to that resource should not be included as they will not gain credit
- 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 (for example, to provide locational 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 a candidate to compare
- ensure knowledge of physical processes and an ability to explain a process, using key terms and clearly sequenced ideas
- write in detail and develop ideas in five mark questions 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. Candidates should continue answers on the specified continuation pages rather than inside the answer booklet or on extra sheets of paper.

General comments

The examination was considered appropriate for the age and ability range of candidates and it differentiated effectively between candidates of all ability levels. The most able and well prepared candidates performed well across the paper and a number of excellent scripts were seen. There was clear evidence of good understanding and thorough revision. Candidates seemed to have sufficient time to complete the paper. However, the final parts of the later questions were not always completed with sufficient detail.

Most candidates followed the rubric by selecting a question from each section as required. Occasional rubric errors were still seen and a reminder to candidates to answer one question from each section is always helpful. Where candidates answer every question, this compromises the time available for each question and disadvantages them.

Questions 1, 3 and 5 were the most popular questions. There were good answers seen to all questions, including those requiring extended writing. The case study questions that were answered the most successfully were about the causes of international migration and the impacts of a volcanic eruption. High quality answers in these case studies were characterised by developed ideas with some clear place detail. Weaker responses tended to be characterised by the use of simple, brief statements. In some cases, a significant amount of detail included by candidates was not relevant to the question being asked, and too often long introductions occupied much of the answer space. An area for improvement for some candidates would be maximizing the marks scored on the **part (c)** questions.

Case studies require place specific information to allow candidates to access the highest level. This requirement can vary between questions – for example, settlements (**Question 2**) or a river (**Question 3**) or a country (**Question 6**). Candidates should carefully consider their choice for each question ensuring that they select an appropriate example at the correct scale and also that they have included relevant place specific detail.

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

Comments on specific questions

Question 1

This was generally more popular than **Question 2** with more candidates attempting it.

- (a) (i) The majority of candidates were able to define what population density measures; however, some candidates incorrectly suggested it was the total population in an area rather than a given area.
 - (ii) The majority of candidates were able to correctly identify both continents.
 - (iii) This question was not well answered with some candidates incorrectly considering birth and death rates rather than the concept of overpopulation. Few candidates considered the relationship between population size and resource availability.
 - (iv) This question was well answered and candidates gave a whole range of answers focussing on pressure on resources and issues such as air and water pollution. Too many candidates, however, used the general term pollution without specifying the type of pollution, such as air and water pollution.
- (b) (i) This question was not well answered. Responses needed to link the impact of the varying height of land in the photograph on population density. While some candidates linked the idea of low/flat land with high density, or high/steep land with low density, many responses did not consider other issues such as the impact of relief on accessibility, farming, temperature or water supply.

- (ii) This question differentiated well and there were some high scoring answers which considered the importance of good transport networks and so accessibility for industry as well as for people making varied journeys for reasons such as work, school and shopping. Some responses had misunderstood the question and incorrectly considered why people move to urban areas.
- (c) This was a straightforward case study and differentiated well. High scoring answers selected appropriate examples of origin and destination, whether a country or specified regions, and made at least three well developed points explaining the push and/or pull factors influencing the decision to migrate. Weaker responses gave simple, undeveloped and often generic ideas poorly linked to the examples they had chosen, or too often gave a whole range of statistics such as comparative people per doctor or literacy rates but failed to explain how these influence migration. Where statistics are used it is important that these are accurate and included as part of an explanation. Candidates also need to avoid the use of an overall introduction providing context and instead need to concentrate on answering the question set.

Question 2

This question was less popular than **Question 1**.

- (a) (i) The majority of candidates correctly identified the linear pattern of the settlement.
- (ii) Few candidates used the map evidence to give reasons for the growth of the settlement. Where candidates did correctly identify the road or river, for example, they did not extend their answer sufficiently to give reasons for the settlement growth, for transport or for fishing, for example.
- (iii) This question was not well answered and most candidates were unable to suggest reasons for the lack of settlement, such as the river and the potential for flooding. Many incorrectly suggested the land was steep, despite the presence of the river and the road pattern.
- (iv) Many responses did not use the map extract to identify that the settlement pattern is dispersed or scattered with many incorrectly suggesting it is linear. Many incorrectly suggested the land is steep and again did not consider the road pattern shown. The factors underlying the development of dispersed settlement need to be clearly understood.
- (b) (i) While some candidates correctly referred to rural-urban migration and pull factors such as jobs, few considered the demand for cheaper houses or lack of space in the city.
- (ii) Good responses gave a whole range of relevant reasons why residents are concerned by the urban sprawl. Many, however, were unable to develop their ideas beyond the idea of loss of farmland. Ideas such as pollution need to be clarified in terms of the type of pollution, whether air, noise, visual or water pollution.
- (c) This question discriminated well. Stronger responses compared the service provision in different settlements. However, many candidates did not read the question carefully. They selected settlements of equal size or simply wrote a paragraph about each of the two settlements rather than clearly comparing the service provision, despite the potential to compare the number, type or quality of services or to reflect upon spheres of influence and other relevant ideas.

Question 3

This question was less popular than **Question 4**.

- (a) (i) Most candidates correctly answered this question and recognised the fact that one of the values was below freezing.
- (ii) Many candidates were able to calculate the relative humidity using the information provided. The correct units of measurement should be used, in this case percentage rather than degrees centigrade.
- (iii) Most candidates correctly identified the weather instruments. Some candidates, however, needed to specify a type of thermometer rather than simply stating thermometer when considering weather instruments kept inside the Stevenson Screen.

- (iv) Few candidates were able to explain how a weather vane works, with many incorrectly suggesting that the arrow points in the direction the wind is blowing to rather than from. Whilst many candidates were aware that an anemometer spins around, most could not fully explain how the anemometer is used to measure wind speed.
- (b) (i) This question differentiated well. Many candidates correctly identified the maximum and minimum temperature figures, although some were unable to describe the overall pattern. A few responses incorrectly described precipitation patterns rather than temperature.
- (ii) Most candidates correctly identified the month in which flooding was most likely to occur. Many, however, did not develop their answer beyond the idea of high rainfall. A few excellent answers considered the ideas that soil was saturated, the impact of this on runoff and the lack of evaporation due to low temperatures.
- (c) Excellent answers supported by dates and figures were included in case studies such as the Ganges and the Elbe. Most candidates named appropriate examples some of which, however, lacked detail, stating simply that homes were flooded and people died. Ideas need to be developed to gain credit as Level 2 statements. A significant number of candidates gave an inappropriate introductory paragraph describing the causes of flooding, which failed to gain credit as the question was about the impacts of flooding.

Question 4

This was a popular question and was answered by a significant number of candidates.

- (a) (i) The majority of candidates chose the correct option.
- (ii) Most candidates correctly suggested that the earthquake would send seismic waves which shook or loosened the snow, causing it to fall.
- (iii) Many candidates used the resource well to identify three reasons why the rescue was difficult.
- (iv) Responses to this question were mixed. While there were some good answers with relevant discussion of why people live in earthquake prone areas, many incorrectly discussed the attractions of volcanoes instead.
- (b) (i) Some candidates described the photograph well. Many others, however, gave imprecise descriptions or referred to materials that cannot be seen in the photograph, such as lava. Candidates need to learn to describe precisely what can be seen in a photograph and must also avoid stating what cannot be seen, such as 'there are no trees'.
- (ii) Candidates generally showed a very good understanding of all the processes at a destructive plate boundary. Weaker responses incorrectly described constructive margins or lava rather than magma.
- (c) As in responses to **Question 3(c)**, many candidates used an introductory paragraph outlining the causes of the eruption, including naming the plates and their movements. A more relevant approach would be to give the date and location of the eruption and to then consider the impacts. Many responses made simple points and achieved marks within Level 1. Candidates also need to ensure they use accurate and relevant statistics. Most candidates did show some understanding of the dangers arising from volcanic eruptions but few were able to describe the risk in detail, using valid place detail to support their answer.

Question 5

This was a more popular choice than **Question 6**.

- (a) (i) The majority of candidates correctly used the line graph to give an accurate figure.
- (ii) Candidates need to consider the question carefully. In this case, the overall trend was required. Too many candidates, however, detailed each trend in the graph rather than the overall change.

- (iii) This question differentiated well. Stronger answers suggested factors such as economic factors, for example, recessions, variations in the weather or terrorist attacks. Few, however, considered ideas such as the building of new attractions or resorts or better access due to the construction or development of airports. A number of candidates also confused the idea of climate with weather.
- (b) (i) Most candidates were able to use the photograph to identify the beach or the mountains. Many, however, incorrectly focussed on activities which cannot be seen in the photograph. Subjective descriptions such as 'lovely' or 'beautiful' need to be replaced with descriptors of colour or type, such as 'blue', 'calm' or 'clean' sea or 'traditional' or 'old' buildings.
- (ii) This question discriminated well with some excellent answers referring to a variety of mark scheme ideas. Weaker responses tended to simply consider the idea of jobs and money or referred generically to improvements in infrastructure rather than suggesting roads could be built which would make access easier for locals as well as for tourists.
- (c) Where candidates understood that the question was about management and sustainability, they made a variety of valid developed points using well chosen case studies such as National or Marine Parks. At times, however, little place detail was seen, apart from general statistics, which were often not convincing enough for credit. Candidates often made simple statements such as limiting tourist numbers without explaining how this could be done.

Question 6

This was a less popular choice than **Question 5**.

- (a) (i) The vast majority of candidates used the resource and answered this correctly.
- (ii) Most candidates answered this well. Some, however, did not read the question carefully and wrote about renewables and nuclear power rather than giving two pieces of evidence which show that fossil fuels are to be reduced.
- (iii) Most candidates answered this well, using ideas such as reduced import costs and less air pollution.
- (iv) Answers were varied and the question discriminated well. Stronger candidates gave two well developed advantages and disadvantages. However, some responses wrongly suggested that nuclear power is a renewable fuel or made vague reference to danger or explosions or made simple statements that nuclear is cheap or expensive, without developing their ideas further.
- (b) (i) Many candidates gained one or two marks, with most using the photograph well to suggest that it is both often sunny and has strong winds here. Fewer candidates considered the idea of the availability of large areas of open space or the lack of shelter.
- (ii) A variety of answers was seen. Most candidates were able to suggest why people might be against the development. The benefits of the scheme, however, were less well explained.
- (c) Many different examples were seen and most of these were valid. Some excellent responses considered Singapore and the Four National Taps. Weaker responses stated simple ideas such as building dams or desalination without fully developing their ideas or they focussed on HEP rather than water supply.

GEOGRAPHY

Paper 0460/21
Paper 21

Key messages

The term relief was only understood by a small number of candidates (see **Question 1(e)**).

Wind directions are named by the direction that the wind *comes from*.

In photograph questions, candidates should focus on what can be seen in the photographs and not on theoretical knowledge. This was evident in **Question 3** and **Question 6**.

General comments

Responses to the questions ranged from very good to poor across the whole paper. There were some excellent scripts which scored 50 marks and over (out of 60) and a number of weaker ones. Questions which required a longer response were generally legible and well written. Almost all candidates were able to complete the paper in the allotted time.

Question 1

- (a) The majority of candidates scored good marks in this section and made careful reference to the map key. Candidates should avoid copying out a whole line of the key. In **part (v)**, only *forest* should have been stated as *other open land* was not applicable. Likewise, in **part (vi)**, the answer was *arable land* and not *orchard*. Where multiple answers were given, no mark was awarded.
- (b) Many candidates identified the *bathing*, *camp site* and *marina* features correctly, with some including the *ancient monument*. General responses referring to the coastline, roads and buildings did not gain credit.
- (c) In general, candidates found this to be a more difficult section. Candidates needed to use six figure grid references accurately to locate the position of the cross section. Successful candidates then went on to correctly identify the *road* in **part (i)** and *S Mellby* in **part (ii)**. Only a limited number of candidates were able to complete the cross section correctly, with the ground rising and falling before reaching the coastline at 0 m. A significant number of candidates omitted this part completely.
- (d) There were mixed responses in this section with **part (ii)** the compass direction and **part (iv)** the six figure grid reference being answered accurately more often. The distance in **part (i)** was frequently inaccurate with some answers clearly wrong. Answers ranged (in metres) from single digits to hundreds of thousands; the mark was awarded for an answer in the range of 6600–6900 m. Use of the edge of a piece of paper and the scale line more often leads to a correct answer rather than mathematical calculations.
- (e) The key word in the question, *relief*, was either misunderstood or ignored by very many candidates. Where relief was described, candidates gained credit for identifying, for example, *steep slopes*, *V-shaped valley* and other details of the valley. Many correctly stated the highest altitude, 110–120 m. A large number of candidates described features of the river and of the human landscape and these did not gain credit.

Question 2

- (a) (i) Most candidates who answered this question drew accurate plots on Fig. 2.1 and gained both marks. A surprising number did not attempt it, perhaps because they failed to notice the question itself.
- (ii) There were very mixed responses in this part. Good responses compared the two countries in terms of the different percentages in each of the three age groups marked. The question asked for differences in population structure between countries so no credit was given for differences within the structure of each country nor for references to birth rates and death rates. Describing the shapes of the pyramids without interpretation did not gain credit either.
- (iii) Correct answers linked problems to the large/small numbers shown in Fig. 2.1. Correct responses included large numbers of young people to feed or education, lack of workforce and large numbers of old people to support.
- (b) There were very few correct answers in this part. There were frequent incorrect suggestions of infanticide, preferences for males and female emigration, but few considered male immigration for jobs to gain the mark.

Question 3

Few candidates scored well in this question. Insufficient attention was paid to the key words, shown in bold, in each section in order for responses to be relevant and worthy of credit.

- (a) Those candidates who answered this section noted well that the settlement in Fig. 3.1 was on *gentle slopes, at the foot of the mountains, in a valley and near to a lake*. The settlement in Fig. 3.2 was on a *gentle slope, on a hill and above the marshes*. Other candidates who described everything they could see on the photographs and made little mention of site and location rarely scored more than two marks.
- (b) Only those who wrote about agriculture in the photographs scored in this section. In Fig. 3.1, *crops* could be seen, for example, *in fields, sometimes in rows and using water from the lake for irrigation*. In Fig. 3.2, observant candidates recognised *rice crops in fields with raised banks*. Candidates often failed to describe the relevant features that could be seen in the photograph and speculated on activities that might be taking place.

Question 4

- (a) (i) Few candidates knew this definition accurately.
- (ii) It was vital in this part to relate to Fig. 4.1 and strong candidates saw that earthquakes occurred on the plate boundaries. They also noted the exceptions to this relationship, and thus scored both available marks. Discussion of the reasons for this and how plates moved was not relevant.
- (b) Most candidates correctly stated the depth to be *shallow*.
- (c) (i) Most candidates correctly stated the earthquakes to be *minor*.
- (ii) Most candidates correctly described the relationship as an inverse or negative correlation. Answers such as *as the earthquakes become stronger, there are fewer of them* gained credit.
- (d) Almost all candidates gained one or more marks here, most commonly for *collapsing buildings*. Other answers that frequently gained credit included *collapse of roads or bridges, tsunami, landslides and fire*.

Question 5

- (a) Many candidates correctly stated *maximum-minimum thermometer*, *wind vane* and *rain gauge*, though *sunshine recorder* was only rarely identified. On the other hand, a significant number did not know the specific names of the relevant instruments that would have been used.
- (b) The better answers said that *south west winds bring rain and north and east winds bring no rain*. Some candidates stated incorrectly that the south west wind was *going to* the south west.
- (c) Almost all candidates who attempted this question scored the mark, although a large number of candidates did not attempt it.
- (d) There were many correct answers here (7°C) but some candidates had difficulty with the mathematical calculation.
- (e) Using Table 5.1, many candidates recognised that *with more cloud, temperatures were higher*. Only some candidates further developed this idea by considering the effects of cloud cover on maximum and minimum temperatures and on the range.

Question 6

- (a) A good range of correct answers were given to this question. Most candidates gave a thorough description of the buildings with many scoring high marks. Weaker responses often developed a single idea, sometimes surmising at length what the upper floors of the buildings might be used for. Credit was given for noting the tall, narrow buildings, 4/5 storeys, brick, shops on the ground floor, buildings joined to each other, balconies, different designs, chimneys and sloping roofs.
- (b) Good, accurate responses were given by the majority of candidates who used the evidence in Figs. 6.1 and 6.2 well. Most suggested that the presence of the historical buildings (such as a castle, church, university or palace) drew in tourists who would also enjoy shopping and visiting a restaurant during their visit. Most candidates gained two or more marks.

GEOGRAPHY

Paper 0460/22
Paper 22

Key messages

Although candidates were often competent in measuring 360° bearings, they were often unable to give a compass direction correctly. The 16 points of the compass are specified knowledge on page 21 of the syllabus.

In questions on landforms from Theme 2 of the syllabus, care should be taken to see whether the question requires a description of the landform or an explanation of its formation.

In photograph questions, candidates should focus on what can be seen in the photographs and not on theoretical knowledge. This was evident in **Question 3** and **Question 5**.

The term *relief* is still misunderstood by some candidates (see **Question 1(c)** below).

General comments

Candidates performed equally well across the six questions with the exception of **Question 2** which was slightly easier than the rest. There were many outstanding scripts with many candidates scoring marks in the fifties. There were few very low scoring scripts.

Question 1

- (a) Many candidates were able to gain full credit on this section, showing good skills of finding features on the map and identifying them using the key.
- (b) Many candidates scored three marks by noting the *flow to the east* or *south east*, the *meanders* and *variable width*. Far fewer noted the *tributaries* or many *bridges* along the course. Some candidates reversed the flow direction but only a small minority had tributaries flowing out of the river which has been a problem in previous examination sessions.
- (c) Those candidates who knew that relief included height and gradient tended to score well. They noted that A was generally higher and steeper than B. They often illustrated their answers by quoting accurate figures, remembering to include the units (metres). Some candidates wrote answers about land use, settlement and communications which were not relevant to the question set.
- (d) Answers to the question based on the cross section were very variable. P was a road (the E22) and Q was the Vramsán River. It was made slightly more difficult by the south west/north east orientation of the section line. The answers could be arrived at by measuring the distances of P and Q from the edge of the cross section and then comparing the distances with the map. For **part (iii)**, credit was given to responses which showed the relief rising towards X to over 150 m but below 180 m.
- (e) Answers to these questions were also variable. In **part (i)** credit was given to answers between 4000 and 4300 m. Some of the answers gave figures which were clearly not correct such as 1.27 m and 4 000 000 m. In **part (ii)** a large number of candidates failed to give the correct compass direction of east or east north east, but then went on to give a correct 360° bearing of between 77° and 80°. There was a large number of candidates who answered 'north east east' which is not a correct direction. The grid reference was well answered with most candidates scoring two marks for 360987.

Question 2

- (a) The majority of candidates gained credit for the definitions of transnational corporation and globalisation, with the former proving more difficult than the latter.
- (b) In **part (i)** candidates had to describe how features of a country changed as it develops. Most were very successful in noting that the number of people per doctor would *decrease* while the food supply and cell phone use would *increase*. In **part (ii)** explanations rather than descriptions were required. For the fall in the number of agricultural workers, many candidates referred to the *move to secondary and tertiary employment, rural-urban migration* or the fact that *countries could afford to import food*. For increases in energy use, candidates tended to refer to *developments in industry, transport and the home which required more energy*. The reasons given for increased adult literacy were more varied but with *increased school attendance* being the most frequently given.

Question 3

- (a) The question required candidates to describe the features of bay and headland coasts shown in Figs. 3.1 and 3.2. Many candidates were able to gain full credit while others found it difficult to score more than one or two. A wide variety of features was given credit. In Fig. 3.1 these included the *beach and sand, the crescent shape, the vegetation of bushes, the gently sloping nature of the land and beach, and the small sand dunes*. In Fig. 3.2 credit was given for the *cliff, its stepped profile, the wave-cut platform, the rocks and boulders, the layers in the cliff, the colour variation in the rocks and the grass*. Some candidates wrote in detail about how the coastal features might have formed. This was not required by the question and was not given credit.
- (b) Most candidates were very successful in explaining how differences in rock type resulted in the formation of bay and headland coasts. All that was required was to note that *softer rocks would erode more easily and form bays but harder rocks would resist erosion and form headlands*.

Question 4

- (a) Questions requiring descriptions of distributions are very common on this paper. Candidates were generally very successful in this one on the population of Botswana, with many scoring full marks. The best answers included word descriptions, for example, *very sparse*, as well as figures, for example, *less than 1 per km²*. Candidates used compass directions in their answers and generally refrained from referring to the top and bottom and left and right of the map, which has been the case in previous papers. Credit was given for general points such as *overall sparse, small areas of denser population (>10/km²), large areas of very low population (< 1/km² or 1–10 km²), and denser areas along borders*. Credit was also given for references to locations such as *more dense in the east or south east, and sparse in centre, west or south west*.
- (b) When relating the population distribution of Botswana to annual rainfall, most candidates were able to score at least one and often two marks. These were for *there is a larger population in the wetter areas and most areas with less than 300 mm of rainfall have less than 1 person per km²*.
- (c) Candidates were equally successful when relating the population distribution of Botswana to relief. Two marks were often scored for *the area above 1200 m in the south east is more densely populated and there is no strong relationship between population density and relief*.

Question 5

Full marks were common for both parts of the question. The best answers concentrated on what could be seen in the photographs and not on giving textbook descriptions of tropical rainforest and desert vegetation.

- (a) Examiners accepted points such as *dense vegetation, forest or trees, climbing plants, palms, emergent trees, green or luxuriant vegetation, and varied species*, all of which were visible in the photograph.
- (b) Some answers contained irrelevant information because candidates failed to follow the instruction to write only about the trees. Others referred to features such as deep roots which were not visible in the photograph and were not given credit. The better answers described the trees as *tall, sparse (or few in number), with branches at the top (or bare trunks), wide trunks, straight trunks, little foliage and all of the same species*.

Question 6

- (a) Most candidates were able to identify the *growth of industry* and *rural-urban migration* as causes of urbanisation.
- (b) The vast majority of candidates plotted the graph correctly and recognised the *positive correlation*. Good candidates recognised that South America was an anomaly with its *high urbanisation but low GDP per capita*.
- (c) Some candidates found this more challenging but many gained full credit. Credit was given for a variety of approaches to the question. Many candidates noted that urbanisation had gone on between 1960 and 2015 in all four continents, as all urban population percentages had increased. They also noted the rapid urbanisation in Africa and South America, although Africa was still less urbanised than other continents in 2015. They also noted the small changes in North America and Europe and that these continents were already quite urbanised in 1960.

GEOGRAPHY

Paper 0460/23
Paper 23

Key messages

When candidates use the additional pages, it is helpful if they assign question numbers to their additional work. It is also helpful if they direct the examiner to the additional pages from the original question space.

Candidates should be encouraged to express their answers in a positive way. For example, in **Question 4(a)(i)** *not much vegetation and not many trees* is very vague but *a small amount of vegetation and few trees* is clearer.

Candidates must read the stem of the question carefully and should keep the information in mind as they tackle all parts of the question.

General comments

Candidates found **Questions 1** and **2** straightforward, with only **Question 1(c)(i)** proving difficult. Candidates found **Questions 3, 4, 5** and **6** more difficult, especially **3(a)(i)** and **5(a)(iii)**. Most candidates attempted to answer all the questions.

Question 1

- (a) There were few problems with identifying feature A, the tractor track, though some copied the entire line from the key. Public road was all that was needed for the type of road at B, though most candidates tried to also identify the road width. To be fair with candidates on this question, less than 5 m or 5–7 m were both acceptable. Many had a correct answer. The width of the watercourse at C was less than 6 m, as the path was shown by a single blue line, feature D was a mast and feature E was a farm. Most candidates gave correct answers.
- (b) F was deciduous forest; G was marsh and H was marsh liable to flooding. Many candidates scored all three marks and errors were usually due to mixing up the labels rather than incorrect identification of the vegetation.
- (c) The grid reference of the triangulation point was 491024 or 492024. There were few correct answers. Some only gave a four-figure grid reference, which was not adequate for locating a point. The settlement pattern of square 4902 was *linear*, though *nucleated* was also accepted due to the cluster in the south east corner.
- (d) Fig. 1.3 showed the location of an industrial area and candidates were asked to describe the advantages of the location. Many focussed on the adjacent waterway and wrote about water supply and imports or exports through a port. Many elaborated on transport with mention of the railway and motorway as well as the focussing of routes on the bridging point. Other ideas included labour from the town, a market in the town, raw materials from the surrounding arable land and cheap marshland being flat and with space for expansion. There were some good answers here and many scored at least 3 marks. Lower scores occurred when candidates did not sufficiently develop their points, such as mentioning a labour supply but not indicating where it would come from.
- (e) Candidates were then given six statements and had to select which three were correct for Kristianstad. The correct statements were '*sport and leisure are important functions of the settlement*', '*the CBD is on the east side of the River Helge å*' and '*there are areas of forest within the town*'. Relatively few candidates got all three correct with most scoring two. There was no apparent pattern to the wrong answers.

- (f) Fig. 1.4 identified an area of the map extract and divided it into two parts, K and L. Candidates were asked for differences in the relief. K was higher, with land from 15–75 metres, while for L the land was only 5–20 metres. K was also steeper. This latter point was commonly made but the other space was often filled with comment on land use.
- (g) Candidates had to use the correct bearing and the correct distance, but most correctly located Strömdalen as the settlement at 90° and 1200 metres from Stensborg.

Question 2

- (a) Fig. 2.1 showed population information for Russia. The highest death rate shown was 16.4 per 1000. Candidates were mostly correct. Some had mis-read the scale and put 16.2.

The year with the lowest birth rate was 1999. Again, most responses were correct with just a few putting 1990, which was the highest birth rate.

Russia had zero natural population growth in 1991 and 2012. Most candidates put 2012.

Candidates then had to explain why there was zero population growth, and many were able to point out that the birth rate and the death rate were the same.

Between 1994 and 2005, Russia's population total decreased. Most candidates realised this, but they were not always able to explain their reasoning in **part (a)(vi)**. Many simply quoted the figures for population growth in 1994 and 2005, but they needed to clearly state that the figures were negative. A valid point could also be made from the other part of the graph, where it could be seen that the death rate was higher than the birth rate.

From 2013 the population total increased. Here a number of candidates thought that the total stayed the same.

- (b) Candidates were then asked to state the other factor, not shown on Fig. 2.1, which could result in a change of population total. The answer was migration or emigration or immigration. Many had identified migration, while others wrote about factors that related to birth rate or death rate, such as infant mortality or war.

Question 3

- (a) There were few correct answers to **part (a)(i)**. Many candidates failed to note that the question was about the cross sectional shape of the valley. Most candidates knew that deposition will decrease as river flow increases. Many candidates noticed that the addition of a tributary between the village and Q would explain why there was more water at Q. Those who had the wrong approach had looked at the size of the floodplain and simply stated that there was more space at Q or that the river was wider.
- (b) Candidates were told that the river was allowed to flood at Q and were asked why this would help to reduce flooding downstream. Many thought that if water left the channel there would be less to flow downstream, especially as it was able to soak into the permeable valley floor. Area Q was a good location for flooding to occur due to its flat and wide valley floor, with permeable rock for the water to seep into and no settlement in the flood zone. Candidates often noted the lack of settlement but not the permeable rock and the wide flat flood plain.
- (c) Here candidates often focussed on visual pollution, cost, habitat loss and the dangers of dam collapse. Some also suggested noise pollution, though it was necessary to relate this to the period of construction. Some thought that the dam holding back water was a disadvantage, with less water flowing through the village, but this was the purpose of the dam, as given in the stem of the question.

Question 4

- (a) When describing the natural vegetation in Fig. 4.1, most candidates answered well, commenting on the short, scattered bushes and few trees. Some mentioned roots, which were not seen in the photograph. A few described things other than vegetation, such as climate and the desert surface.

Plants growing on the type of ground shown in Fig. 4.1 would find conditions dry, with any water running into the soil very quickly. The large stones on the surface restrict the area for plant growth and the thin stony soil, with its lack of humus, would be loose and vulnerable to wind erosion. Most candidates scored one of these points.

- (b) Candidates were then asked to describe ways in which the ecosystem in Fig. 4.2 differed from that of Fig. 4.1. Almost all of them made mention of the animals in Fig. 4.2 but a number then went on to write about food chains rather than describing other aspects of the ecosystem, as seen in the photograph. They could have mentioned the shorter plants, with their trailing sideways spread, and the lack of trees.

Question 5

- (a) Most candidates noted the large farm with its small labour force as explanations for the use of machinery on Farm R. Less commonly, they pointed out that large fields could easily be worked by machine and cereal crops would be well suited to machine cultivation.

Many candidates understood that the farms were both arable.

In **part (iii)** candidates were usually able to explain that the owner of Farm S used fertiliser to increase or maximise yield, though some thought fertiliser was to get rid of pests. For irrigation, few candidates linked their answers to climate. Explanations of the use of hand tools included statements such as *the farmer can't afford machines*, *the fields are too small for machines* or *the crops are not suitable for machines*. Few candidates scored more than one mark for this part of the question.

- (b) Many candidates gained credit for complete statements such as *it is a small farm in comparison with its large number of labourers*. Incomplete statements such as *it is a small farm* only scored one mark. Some candidates used figures from Table 5.1 without commenting, and so failed to gain credit.

Question 6

- (a) Most candidates were able to describe one difference between the growth of human and livestock populations in Kenya. Overall, livestock showed greater growth and with a more irregular growth rate. Livestock population grew more slowly than human population between 1995 and 2000 but more rapidly between 2005 and 2010. Few candidates scored two of these points.

- (b) Candidates were asked to explain why increasing livestock numbers would not be sustainable. Some noted the small area of grassland, the lack of grass in the dry season or the large area of sparse grass and scrub, but many found this difficult. In **part (ii)** few candidates linked their answers to animals trampling vegetation.

- (c) Possible answers included overgrazing, overcultivation or extension of cultivation and deforestation. Many candidates scored one of these points.

- (d) Most candidates suggested that reduction in livestock numbers would cause food shortages. For use of oil or gas instead of wood or charcoal, candidates tended to focus on issues of pollution, global warming and sustainability. More immediate problems would be cost, the need to adapt stoves and the difficulty of accessing supplies.

GEOGRAPHY

Paper 0460/03
Coursework

Key messages

This report refers to the performance of centres in the June 2019 examination. However, the comments made here are equally applicable for centres that make their entries for the first time in November 2019 or during 2020.

There was an increased entry for the June 2019 session compared with that for the IGCSE Geography Coursework component in June 2018. The number of centres grew by 8% worldwide, with this increase coming equally from a variety of locations overseas as well as from UK centres. There is now a significant number of centres, especially from the UK, which have opted for 0976/03 rather than the 0460/03 component.

For established centres, the quality of the coursework submissions continues to improve. Virtually all candidates follow the Route to Geographical Enquiry. Their coursework is the product of much hard work as well as both analytical and presentational skills and knowledge and understanding derived in the main from their geography lessons. Fieldwork which has been organised to collect geographical data for this coursework has in most cases achieved its aim, with candidates collecting enough data to enable them to achieve their potential.

Furthermore, almost all markers used the *Generic mark scheme for Coursework assessment* found in the IGCSE syllabus document, with the marking being carried out both consistently and conscientiously. The team of Cambridge International Moderators would like to thank the markers for the high level of comments on scripts to justify the marks awarded. In most cases this has certainly ensured the smooth running of the moderation process.

For new centres, if you have not already done so, then you should submit an outline proposal for approval by Cambridge International. This details the nature of the coursework that you are planning for your candidates to undertake, and should be based on the route to geographical enquiry. Besides the *Moderator's Comments on School-Based Assessment of Coursework* report on the submitted coursework, it is the main opportunity for Cambridge International to offer advice based on good practice as well as comment on proposals which may hinder a candidate. Provided suggestions are at an appropriate level for those studying IGCSE and the topic is on the IGCSE syllabus, then approval is nearly always forthcoming. Once submitted, there is no need to resubmit this year on year if the proposal remains unchanged.

It is also recommended that teachers who are new to the coursework option attend the relevant course for IGCSE Geography operated in their region. In addition, there is training available online. There is also the Coursework Handbook available from Cambridge International which includes examples of coursework which are annotated to show how they should be marked.

Once again, it must be stressed that this report focuses on points where the moderation process could have been a little smoother or where candidates could improve their coursework in order to access the higher grades. Where there were problems it usually stemmed from centres whose staff had not received training on how to run and/or mark the coursework option.

General comments

The team of Moderators reported that they were very impressed by the range of studies and the high standard that was exhibited across all the assessment criteria, regardless of the location of the centre. They also reported that the best studies were those that were concise and kept to the word limit. It was also noted from some of the evaluative statements and photographs, that many candidates seemed very enthusiastic

regarding working out in the field as opposed to the classroom, and that they felt they had learnt a lot through the experience. It was stated that, by and large, the studies were well focused and that most achieved a good balance between the five sections of their studies. If anything, there was a tendency to make the introduction and methodology too long and the analysis and conclusion too short. The range of methods of presentation was thought to be very effective, and that the variety of these seems to grow year on year.

This session, the number of Physical Geography studies has caught up with the number of Human Geography ones. The former are still predominantly on rivers or coasts while the Human Geography ones tend to relate to tourism, urban land use or environmental quality. Once again there is no evidence that candidates do better in one than the other. Both seem to yield an equal amount of primary data, although there appears to be a greater use of secondary data in human geography topics.

Comments overall

Centres must be commended on the organisation of their fieldwork data collection programmes. There was very limited evidence to indicate that candidates had little idea of the purpose of their data collection. Some even undertook a pilot study, which is to be recommended if the timetable allows.

Although data collection is normally a collaborative exercise, individuality is key to reaching the highest marks. It is therefore important that a group of candidates undertake a range of different hypotheses on any one topic. One model is to have one overarching hypothesis and then each candidate attempts a maximum of two sub-hypotheses. In other cases, each candidate was given one hypothesis by the centre and then he/she uses their own initiative in devising another. The latter was always approved by the centre, since it had to be workable. This session it resulted in a variety of different studies and clear evidence of an individual's own work. However, there are some centres in which all candidates do the same hypotheses and submit the same computer generated graphs. In many of these cases Moderators reported that very little individuality was demonstrated. Some centres choose to undertake their fieldwork under the auspices of a field study centre. This is to be encouraged, but it is important that individual candidates test different hypotheses, use different parts of the data collected and produce different graphs.

Some candidates undertook too many hypotheses. In order to stay within the word limit, this tended to sacrifice a depth of analysis and explanation in which candidates could demonstrate their level of understanding. There are still some centres where the majority of their candidates clearly exceed the word limit. A very small number of studies were over 10 000 words. One of the skills being tested is the ability to be concise. Cambridge International would expect all candidates to adhere to the word limit of 2000 words, give or take the odd one hundred words. Writing well over 2000 words means that a candidate tends to lose focus on the aims of the investigation. Please encourage candidates to declare their word count in future submissions; this should help them to analyse their findings in a more succinct fashion. Please note that where text is placed in tables, this also counts towards the word limit.

In general, markers were very accurate in applying the *Generic mark scheme for Coursework assessment*. In nearly all centres it was applied consistently and this made applying adjustments relatively easy. Once again there were a number of centres whose marks had to be adjusted, but this was usually within the range of –2 to +2. While many were negatively adjusted, this was not always the case, and there was an increase in those that were changed positively compared with this time last year. While most centres' marks were not changed, there seemed to be a pattern of negative adjustments above 48 marks and positive ones for those below 35. As was the case last year, *Knowledge with Understanding* and the *Conclusion* were adjusted negatively, while *Organisation and Presentation* were adjusted positively. Those very few centres which had a large adjustment applied were generally relatively new to the moderation process; the reasons would be detailed in the document *Moderator's Comments on School-Based Assessment of Coursework* which each centre receives.

The criteria of *Knowledge with Understanding* tended to be assessed a little too highly. Whilst it is inevitable that much of a candidate's knowledge will be demonstrated in the introduction, for instance, with the description of relevant theories, it can still appear in all the other sections, and in particular the analysis, when explanation for the patterns that have been identified are sought. Likewise, understanding should be assessed throughout the study and relevant comments made on the script, for example, when a theory has been appropriately applied or indeed a well reasoned account of why it has been dismissed.

On many occasions the introductions were too long. This often consisted of extraneous background detail of the study area or redundant geographical concepts, for example, of river features which do not appear in the

remainder of the study. Glossary definitions are often superfluous; thus, when quoting theory all candidates should be advised to link it to the study area and/or the aims of the investigation. All hypotheses should be justified, albeit briefly, together with a summary of the expected outcomes. The theories that appeared the most often were the urban land use models, especially of Burgess and Hoyt, and the Bradshaw and Butler's models. The candidates as a whole are utilising these far better than in the past, with frequent references to them, not only in the introduction, but in the analysis and/or conclusions. Despite the above, the majority of candidates' introductions were well focused on the aims of the investigation, with clearly justified hypotheses backed up by relevant theory.

The criteria for the *Organisation and Collection of Data* were by and large accurately assessed by the markers and very few adjustments had to be made. Most centres arrange for candidates to collect enough data between them to ensure the opportunity for sufficient depth of understanding and detail to be demonstrated in their analysis. The advice that at least 50 questionnaires should be undertaken by a group as a whole is now well understood. Those candidates who go out and collect data on their own are the ones who are more likely to fall well short. In addition, in river studies there is no shortage of the different parameters on which data is collected, but sometimes the amount of data on each parameter is limited by the number of sites at which data was collected. It is understood that student safety must not be compromised, but centres which can only undertake data collection at two or three sites instead of the recommended minimum of six, might consider measuring each site at three different cross sections each 100 m apart.

Many centres are advising their students to write up the data collection in tabular form. This is largely designed to save on wordage, but many are still far too long and thus it defeats the object. Some of the evaluation included in these tables might be better left until the concluding section of the report. In addition, only methods linked to the candidates' hypotheses need to be described. If there are omissions in the description of data collection, then it is referenced to the criteria for site selection and the reasoning behind the methods of sampling adopted. A demonstration of a clear understanding of the latter, for instance, could add to the mark given for *Knowledge and Understanding*. In the former case it is expected that the reasoning for site selection should go beyond the statement 'Our teacher selected the sites on the basis of convenience'. There are some centres which attempt to collect all the data within a one to two hour period. This often, but not always, results in a limited amount of data compared with those who have been given much longer.

There are now only isolated examples of candidates who base their data collection on a preponderance of secondary data. This is unlikely to score at a high level. However, there have been some very good studies which have compared their data with that collected by the school in the past, and this is perfectly admissible. Many of the well organised studies included tables of relevant data after their descriptions of the data collection exercise and usually integrated with their *Presentation and Analysis*. Those who did not include their data should be encouraged to do so, not only to provide evidence that they took part but so that reference can be made to it alongside relevant graphs.

The criteria for *Organisation and Presentation* still tend to be a little undermarked with many markers not giving due credit for elements of sophistication. Most candidates followed the route to geographical enquiry and therefore produced studies with an appropriate structure, which included an index of contents and page numbers. For some, however, the page numbers seemed to be added at the last minute and did not always reflect what was written in the index.

The better organised studies nearly always integrated their graphical presentation with their analysis. This helps to ensure students analyse the data shown by each graph/diagram/map in turn, in order that its relevance to the aims of the investigation can clearly be distinguished and conclusions drawn at the end. There were also some instances of candidates lumping all their graphs together in the appendix. This should be discouraged. Most candidates did submit work with three different graphs, although many still rely on simple methods, for example, pie and bar charts and line graphs. It should be noted that different sorts of bar graphs only count as one technique. Markers should be looking for the ability to use complex techniques in order to award higher level marks, although the use of a complex technique does not always mean that it portrays the data effectively. Where there were multiple river channel cross sections, beach profiles or footpath cross sections to show the amount of erosion, these were not always drawn to the same scale to facilitate ready comparison.

This session, this has also applied to a plethora of radar graphs. Choropleth maps did not always have categories which are equal in size and neatly coloured with a clear progression of levels of intensity of the colour. Some good examples of graphs that were seen and which demonstrated the appropriate degree of sophistication were divided bar graphs and scatter graphs with a line of best fit. Bars, proportional circles and

pie charts located on maps as well as isolines, flow lines or desire lines were all acceptable. However, the same data presented in a number of different ways is likely only to count once, even though they are complex techniques.

There were also some excellent field sketches which were clearly linked to one of the hypotheses and were very well annotated. Others, however, at times were rather scruffy: the relevance was difficult to ascertain and features difficult to identify. Photographs too should not only be carefully selected to be relevant but they should also be well annotated. Too often, the author was content with just a title and/or a description at the side. Since it is expected that individual initiative is demonstrated in the use of presentation techniques in order to attain the highest marks, it is therefore best to avoid the same range of computer generated graphs appearing in every study that a centre's candidates submit. In addition, such graphs often have labels missing, especially on the Y axis. Candidates should check for this before submission. There were many instances of worked examples of statistical analyses which counted as a complex presentation technique. These included Spearman's and Chi Squared. But candidates have to demonstrate they have done the complete working out themselves and have not just relied on pressing a computer key to get the result.

There are many examples where published maps are very well adapted by candidates to show the locations of the sites of data collection. These too are usually well annotated. Unfortunately, there are still too many occasions where a number of different maps at different scales are included, especially in the introduction, for example, at country/region/local area scales, which are hardly utilised. These often have no scale line or orientation. The latter is often the case where Google maps are used, and to state simply 'not to scale' is not appropriate. It is worth stating here that some of the best maps continue to be those which have been hand drawn and this is to be applauded. Finally, there are still images of both maps and graphs which are scanned into the study and are barely readable. It would be far better to provide the originals.

For many established centres the *Analysis* is now much longer than it used to be, and the quality of both the description and explanation of the data has improved. For new centres it is often too short, with use of numerical data being limited and explanation being rather speculative. In general, phrases like 'It might be explained by...', 'The reason could be...' or 'It may have been...' are to be avoided. In general, the requirement for reasoned explanations at Level 3 is often overlooked by markers when reasons given are very short and tenuous, despite an interpretation of the data which is thorough. The best reasons are based on theory or perhaps local characteristics of the area such as rock type or human interference, for example, when referring to the variation in sediment shape or size along the length of a river. Once again there were examples this session of purely descriptive accounts being valued at mid-Level 3.

The best analyses picked out the major anomalies from graphs, used numerical values to show why they are anomalies and explained them with reasons that are creditable. Too often such anomalies are put down to unspecified 'errors in the data collection'. It must be remembered that the analysis section is where candidates can really demonstrate their depth of understanding, or not, as the case may be. An example would be in the interpretation of the result of statistical testing such as the coefficient generated from the use of Spearman's Rank Correlation and, in particular, if the result of this value is being significance tested. It is also worth remembering that the depth of analysis can be severely limited by the lack of a sufficient amount of raw data on any one variable for interpretation purposes.

In general, conclusions continue to be too short. Although many of the stated conclusions were clear with each of the hypotheses being confirmed or rejected in turn, there was often a lack of evidence to support these assertions. This should include several examples of key data, usually in numerical form, which the Moderators reported was often absent. This included direct references to graphs and often the results of statistical testing. Many candidates did, however, link their results to the geographical theory outlined in their introductions. Nevertheless, the lack of key data limited progression into Level 3 of the assessment criteria for *Conclusion and Evaluation*, despite the presence of a sound evaluation. Therefore, some markers were a little generous when assessing these criteria.

Evaluations tend to be done well. Candidates in general seem to be very good at criticising their data collection strategies as a whole, although there could be greater reference to methods of sampling, especially where a questionnaire was carried out. Most managed at least two valid suggestions on how the problems they identified could have been solved, which went beyond 'Collect more data' or 'Sample more sites'. Some candidates also stated how their study could be extended should it be repeated. Although there was often some evaluation of methods used to collect the data in the methodology section, markers should note that a separate section entitled 'Evaluation' is expected as part of the conclusion.

Administration



Almost all centres submitted their coursework samples to Cambridge International on time, before the 27th April deadline, with the appropriate paperwork completed. The latter consisted of the Candidate Summary Assessment Form together with the MS1 or the Internally Assessed Marks Report. Please make sure that an individual Candidate Record Card is attached to the front of each script and not sent in the overall package in one pile. British centres also managed to return their samples to Cambridge International speedily, having received the request for specific scripts. This was much appreciated by the Moderators. In addition, please ensure that candidates are listed in candidate number order on the Coursework Assessment Summary Form.

Most of the paperwork was completed accurately and included with the sample. In almost all cases, the sample included an appropriate number of scripts representing a fair cross section of the marks awarded (to include the top and bottom of the mark distribution).

There are still a number of instances, however, of errors in the paperwork being reported and thus it is worth restating the following.

Errors usually took place in one of the following instances:

Most commonly 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 to the MS1 form.

Transcription errors from the Coursework Assessment Summary Form to the MS1 form. Occasionally, this may occur where an internal moderation has taken place and the candidate's original mark has been entered instead of the changed mark.

Although Moderators do correct these errors whenever they are found, it is recommended that all centres should have their candidates' marks double-checked.

If they have not already done so, could markers please make comments on the actual studies (in pencil) to justify the marks/levels awarded for each of the assessment criteria. The wording should reflect the wording/phrases used in the generic mark scheme, and this will then aid the smooth running of the moderation process.

Where a centre has more than one marker, it is essential that an internal moderation takes place. There is evidence that these have been conscientiously carried out by most centres and marks changed accordingly. However, the change for an individual candidate is not always reflected in the change in marks for individual assessment criteria, only the overall totals. This information is essential for the moderator's job to be carried out effectively. There have been occasions when one marker's marks from a centre have differed markedly in standard from those of the other markers, and an internal moderation is the best way to resolve this problem.

GEOGRAPHY

Paper 0460/41
Alternative to Coursework

Key messages

Every examination is different but there are usually a few generic tips and key messages that need making that should improve candidate performance in future. Most of these have featured in previous reports but the same issues do 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*, *Suggest*.

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 conclusion with evidence from Table 1.3 and Fig. 1.5*.

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 out a question. Some questions are hard to find if they are on pages with a lot of graphs or maps. Make sure you have answered the questions on every page. This applies especially to questions where you are asked to complete tables, diagrams, graphs or maps.

General comments

Most candidates found this examination enabled them to demonstrate what they knew, understood and could do. The overall range of marks went from 6 to 51 out of 60 – a range 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 to 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 1(e)** where some candidates did not focus on processes but on land use, inputs and outputs. As in some previous papers, **Questions 1(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 or methodology 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(b)(ii), 2(a)(ii), 2(b)(i) and 2(c)(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) Many candidates scored at least one mark. They were more successful in locating the wheat field and found the second part which used the sixteen-point compass more challenging.
- (ii) The most popular answer was to ask the farmer or teacher to identify the crop. The other common suggestion was to search for the crop on the internet, or occasionally in a book.
- (iii) Nearly all candidates correctly totalled the area.
- (iv) The question differentiated well. Better responses identified that a bar graph shows an exact size or area and a pie graph illustrates percentage or proportion. Weaker responses suggested that such graphs were easy to read, visual or easy to compare which received no credit without further development. Some candidates suggested the same weak advantage for both graphs.
- (b) (i) Most candidates correctly chose altitude, although a few candidates ticked two or even three alternatives.
- (ii) This was a section which proved to be difficult for candidates. Although many candidates had some experience of measuring a slope profile, answers tended to be vague in terms of how to use marker poles, what section to measure, and how to use a clinometer. Only the better responses gave details which resulted in maximum credit being gained. Some candidates referred incorrectly to measuring gradient rather than angle when using the clinometer.
- (iii) The question proved to be a good discriminator. Better responses used the data well to compare types of land use at varying heights and steepness in order to support the hypothesis. Candidates usually did better in linking land use to height rather than gradient. Commonly, candidates compared two land uses, most often wheat and sheep, although a few candidates did go into more detail about changes in land use with height or gradient. Weaker responses listed the sequence of land uses up the hillside but did not relate these to height or steepness of slope.
- (iv) This proved to be a challenging question and many answers were too vague such as 'temperature changes' and 'a crop such as wheat can only be grown on flat land'. To gain credit answers needed to be more developed and relate the factor to the land use, such as wheat is grown on flat land because machinery can be used, or the weather becomes cooler or wetter which does not suit crop farming.
- (c) (i) Most candidates plotted the points accurately and labelled them, which was required to gain credit. A minority of candidates misread the scale when plotting olives.
- (ii) The question had a high omission rate of 15 per cent but most candidates who drew the best-fit line were successful. A minority of candidates drew the line directly from top to bottom of the graph or joined all the crosses together, thus showing no understanding of a best-fit line.

- (iii) The first question requiring a conclusion to be made was generally answered correctly by candidates who recognised that there was a negative correlation between field size and hours of labour, and consequently the hypothesis was false. Better answers referred to the different examples of land use and gave supporting paired data to show the negative relationship. While weaker answers recognised that the hypothesis was incorrect, they failed to pick out data to support their conclusion.
- (d) (i) This question was straightforward and differentiated well. The most popular human inputs suggested were money or capital, machinery and fertilisers. Some candidates showed no understanding of what 'human' inputs are and suggested natural inputs or gave vague ideas such as transport or chemicals.
- (ii) As in the previous question candidates needed to know the difference between human and natural inputs to farming. The most commonly suggested inputs were soil fertility and specific aspects of weather such as rainfall. Weaker responses simply stated weather or climate which was too vague to gain credit.
- (e) The final question, which gave the opportunity to suggest ideas to extend the fieldwork study, was another good discriminator. Some candidates did not have a clear understanding of 'processes' and simply described what was produced on the farm or repeated inputs and outputs. Better responses made excellent suggestions about how to extend the study including interviewing or giving a questionnaire to the farmer or farm workers, visiting the farm again or working on the farm, or merely watching the different processes being done.

Question 2

- (a) (i) Many candidates found this question challenging. Better answers referred to ideas such as considering the distance between sites, avoiding fast-flowing or deep sections of the river, and ensuring that the sites were accessible. In contrast, weaker answers did not focus on choosing the fieldwork sites but on other less relevant things to be considered before doing fieldwork such as what to wear and what equipment to take. Weak answers also focussed on safety but without explaining what the dangers might be.
- (ii) As in the previous question there was much variation in the relevance of answers. Better responses suggested doing a pilot study where they could check on what measurements to take and how they would do the tasks, and make sure that they knew how to use equipment. Some also suggested that an advantage would be to get used to working with other members of the group. Weaker responses focussed on issues other than those which would ensure the accuracy of results, such as charging mobile phones and taking sunblock!
- (b) (i) While most candidates gained some credit, many answers were quite vague and lacked precision, which is surprising as measuring the width and depth of a river are standard fieldwork tasks. Often candidates simply stated that they would extend a tape across the river to measure the width, which omitted details about how they would measure it accurately. Similarly they stated that they would use a ruler to measure the depth, but gave no details of how this would be done to get an accurate measurement.
- (ii) Most candidates plotted the three depths accurately but many failed to shade the area of the river channel as instructed. Some candidates only shaded a narrow band along the wetted perimeter or shaded the area of rock below the wetted perimeter.
- (iii) The question differentiated well. Most candidates suggested one valid problem, most commonly that the tape would be moved by the current of the water or that it would be difficult to see the bed of the channel through the muddy water. Weaker responses simply suggested that it might be dangerous or that students should not go into the water.

- (iv) Most candidates reached the correct conclusion to the hypothesis for group A but fewer did so for group B. Where they reached the correct conclusion, more candidates gave appropriate paired data to support the hypothesis for group A than to disprove it for group B where they needed to show a decrease in wetted perimeter between sites.
- (c) (i) The question differentiated well. More candidates described the method using floats rather than a flowmeter. Better responses accurately described the correct sequence of actions to time a float moving between two points over a measured distance. Weaker responses referred to the float but gave no details of a measured distance or accurate timing. Candidates who knew the method of using a flowmeter also scored well if they gave details of how the flowmeter should be positioned in the water and where measurements should be taken.
- (ii) Most candidates drew the bar correctly.
- (iii) While most candidates attempted to use appropriate paired data, they sometimes did not state whether their data showed an increase or a decrease in velocity. The best answers stated that velocity increased or decreased between two sites and gave appropriate data from the two sites identified. Some candidates stated that velocity increased or decreased between two sites, but did not gain credit because they omitted the supporting statistics.
- (d) (i) Nearly all candidates correctly interpreted the scatter graph.
- (ii) The question was challenging as candidates had to identify evidence supporting the positive relationship between wetted perimeter and velocity, and identify evidence which disproved the relationship, i.e. anomalous results. Many candidates chose sites one and five to support the positive relationship and sites two and three or four to show a negative relationship. Some candidates gave appropriate statistics but did not integrate them into their analysis and consequently these standalone statistics were not credited.
- (iii) Popular suggestions of factors which affected river velocity included gradient, discharge, rocks in the river and whether the river was meandering. There were also many incorrect suggestions such as depth or width which are part of the wetted perimeter, the amount of load being carried and weather. Thus the question differentiated well as only the better responses gave two appropriate suggestions.

GEOGRAPHY

Paper 0460/42
Alternative to Coursework

Key messages

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

When answering hypothesis 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. *True* in **Question 2(d)** – do not then disagree with it and try to justify your view. You need to support the decision made 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 1 can look like a 2; 4 can look like a 9; a 7 can look like a 1, sometimes a 2 looks like a 5. Candidates' writing must be legible; credit cannot be given if the answer cannot be read. This caused some reading issues with **Question 1(b)(i)** this session.

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 – ref. **Question 1(c)(i)**.

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. This was important in **Question 2(c)(i)**.

If you 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, e.g. **Question 1(b)(iii)**, **Question 1(c)(i)** and **Question 2(c)(i)**.

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)(ii)** Fig.1.4 and Table 1.1.

Take into account the marks awarded. Examiners do not expect you to be writing outside the lines provided, so do not write a paragraph when only two lines are given – this wastes time.

Be careful with the use of terms such as *'majority'* when the correct term would be *'highest'* or *'most'*. The *'majority'* must be more than 50 per cent of the statistics being described and is not a term that will be accepted if the data involved are less than 50 per cent, e.g. **Question 2(c)(iii)**.

It is important that, when you write the remainder of an answer elsewhere, you signal it by writing something like (*continued on page 14*) to ensure it is seen. It also needs to be noted that a significant number of candidates gave the wrong sub-section number to their extra work this session which made it more difficult to match to their earlier answer and credit correctly. This year, as in 2018, some candidates chose to write long answers and frequently wrote down the sides of the pages or were given separate 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 many candidates with most questions being attempted by candidates and most achieving marks on most sections. Weaker responses scored well on the practical questions such as drawing graphs or completing tables, making calculations and making choices from tables. Stronger responses scored 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 than with others. As there are no question choices to make, it is difficult to miss sections out – though candidates do (especially in the completion of graphs) but less so than in previous sessions. There were no reports of time issues as the structured booklet format does not allow or encourage overwriting of sub-sections.

Most points for teachers to consider when preparing candidates for future Paper 42 questions relate to misunderstanding or ignoring command words and the importance of experiencing fieldwork – even if it is only in the school grounds or simulated in the classroom. Particular questions where candidates did not score well 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 should be aware that, 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, measuring instruments and the various graphs and other refining techniques listed in the syllabus are also important for success in this examination.

Question 1 proved to be slightly more difficult than **Question 2** as is often the case with physical geography. This question focused on the topic of investigating temperatures around a school in South Korea. It involved knowledge of digital thermometers and the use of anemometers plus analysis of temperature data, and focused on describing and explaining differences between temperatures in built-up areas and rural areas. A map of the area was provided alongside photographs of a digital thermometer and an anemometer in the insert along with a detailed table of temperature data, a vertical bar graph, a vertical line graph for completion and analysis in the structured answer booklet. Candidates needed to make judgements about two hypotheses using data as well as applying knowledge and understanding to agree or disagree with them.

Question 2 proved to be slightly less difficult than **Question 1**. This question was about the effect of tourism on traffic in a town in the UK. It required ideas about how to make a traffic survey reliable, recording and producing graphs using traffic survey results plus analysis of the comparative frequency of cars and tourist coaches through the day. The question finished by asking candidates to describe a sampling method to use with a questionnaire about a traffic-free zone and to list advantages and disadvantages of this development. Tables of traffic survey results at different times were provided in the insert and a table of traffic survey features, a recording form including the use of tallies, and a vertical divided bar graph were provided for completion exercises in the answer booklet. Candidates needed to make judgements from evidence with regard to one hypothesis; they were told that the students had decided that the second hypothesis was *True* and needed to justify that decision instead of making their own judgement.

Comments on specific questions

Question 1

- (a) (i) This proved a straightforward opening question for most candidates; a photograph of a digital thermometer was provided so that candidates could provide some detail about its advantages rather than give generic answers. Most stated that it was accurate and some, using the photo, added that it gave figures to 1 decimal place. Most stated that it was quicker or instant, and the third most popular idea was shared between its sensitivity, its portability, being easy to read and the possibility of having the temperature in different units of Centigrade or Fahrenheit, which were indicated by buttons on the photo. Some vague answers included that it could be used anywhere, it was easy to use or that it was safer. These ideas needed more detail.
- (ii) Many candidates correctly suggested using another thermometer to check – either a traditional one or a second digital thermometer. The other idea that was popular was to get another student to

check the temperature at the same time. Quite a few candidates suggested repeating the measurements and then calculating an average, which was not relevant to checking their reading was correct; in order to check it they needed to take more measurements and then see if they were the same. Some just stated 'repeat measurements' which gained no credit. A few suggested taking the measurement at the same time at the same location on another day, as if that could check a measurement taken on a previous day. Comparing it with a local weather station, a previous study or secondary data from the internet were other responses worth no marks.

- (b) (i) This was well done by almost all; a small number of candidates miscalculated the temperature difference.
- (ii) This was not well done by many candidates. Responses often just referred to 'the results' or 'the temperatures' instead of focusing on the detailed data in the table and figure they were referred to, i.e. *Average temperature*, *Afternoon temperature* and the *Difference in temperature* columns where the figures were clearly anomalous. Where they agreed with this, they needed to support one of the statements with comparative data that recognised temperatures were higher/lower – not just different. A common answer was to state that the temperature difference was 21.2°C, which was much larger than the others; at this level they should have stated the next highest or given the difference, e.g. 21.2°C where the next highest was 8.7 or it was 12.5°C higher. Quite a few recognised that the car park should be eliminated because its results were more like a built-up area, which was credited.
- (iii) There were two straightforward plots to add to the bar graph. Most candidates did this well, especially the 29°C plot, which was on the 29°C line. The other plot needed a judgement between two lines at 16.7°C and most did manage this, although less successfully than the 29°C plot with bars drawn at 16.6°C or far too high. A few drew a double width bar at 29°C; others drew a 16.7°C bar in the blank space between built-up areas and rural areas, despite the label for the large dense woodland being provided. While there was no mark for accurate shading on this occasion, it is worth noting that candidates should shade the bars in the same style as the completed bars. If a mark had been available for shading, quite a few would not have been credited with it either through using their own shading or through not shading them at all.
- (iv) This question was done well overall. Most candidates judged that temperatures were higher in the built-up area and then went on to choose one of the columns of data to support this. A few, however, just repeated the hypothesis; they should give a clear decision for credit to gain the reserved hypothesis mark. The most popular and correct response was the average temperature being higher with 31°C being the highest in the built-up area compared to 22°C being the highest in the rural area. Some candidates bizarrely compared the 31°C highest with 16.7°C – the lowest in the rural area. The word 'average' was not always included though, which was essential for the statement mark. A few did recognise that the lowest average temperature in the built-up area (22.9°C) was still higher than the highest in the rural area (22°C) which was credited. A few candidates did not specify which temperature column they were using and just stated that temperatures were higher, which was repeating the hypothesis. A small number of candidates did not read the question – 'Do **not** refer to results in the car park' – and used car park results which could gain no credit.
- (c) (i) These were two difficult plots with quite tight tolerances, so it was pleasing to see how many did manage to plot them accurately; not only that but also most realised the top plot was a circle and the bottom plot was a cross – this counted in the awarding of marks. The commonest error was to misread the vertical scale and plot 27.9°C just under 29°C and 17.8°C just under 19°C. There were a relatively high number of *No Responses* on this question; maybe they thought the graph looked complete. In some cases, the size of the plots was large and covered quite an area, making it difficult to judge their accuracy. A thinner pencil might have helped some candidates gain credit.
- (ii) This question was not well done by many candidates. Many candidates decided this was *Completely true* or *Not true* when the anomaly of 8.7°C in the rural area was higher when compared with the two sites with lower temperature differences of 7.6°C and 7.5°C in the built-up area. The best responses realised that, while all the other built-up area sites had higher temperatures, this anomaly meant it was *Partially true*. Many candidates choosing *Partially true* then only gave the anomalous data that went against the hypothesis; they did not give the data that supported it. The question clearly stated '*...support your answer with data...*' so two sets of comparative data were needed for full marks; one set supporting it and one against.

- (iii) This sub-section was poorly answered by most candidates. Many candidates regarded this question as an opportunity to write a great deal about why heat islands existed in large cities compared to their rural surroundings. While some of these ideas were relevant and credited, the key part of the question referred candidates to data that had been derived from the local map in the insert. The map showed the school buildings and rural surrounds including a tea plantation and woodland with a car park close by. Candidates who scored well on this wrote about the influence of concrete, tarmac and building materials on temperatures and included some references to albedos and the absorption/radiation of heat. They also wrote about the influence of shade and humidity in the woodland. The possibility of heating and air conditioning influences from the school buildings, while marginal at this scale, was accepted. All of these could be relevant to this area and could be credited. What was not credited was related to the influence of tall buildings/skyscrapers on shade, traffic congestion and pollution, the effect of large numbers of people and industry and wind tunnelling – all of which were relevant to large cities but not to this area. Some candidates also managed to include aspects of climate change and global warming in their responses
- (d) At IGCSE level it was generally accepted that an increase in cloud cover during the day would prevent the direct penetration of sunlight to heat the ground and the overall effect would be to lower temperatures during the day, when all these measurements were taken. This was by far the majority view of candidates who gained full credit. A few regarded the clouds as a blanket keeping heat in or reflecting radiation back into the atmosphere, thereby causing temperatures to rise or be stable. Some mentioned the role of clouds keeping heat in during the night, which was irrelevant as temperatures were taken in the morning and afternoon and the question stated ‘...*daytime temperatures*...’ A number decided that the clouds caused rain, so they would keep temperatures higher.
- (e) (i) The anemometer is a listed instrument in the *Weather* section of the syllabus, but many candidates either left this blank or gave methods of measuring wind speed that were inappropriate, e.g. barometer, wind gauge, windmill, speedometer, wind vane.. Centres should ensure that all candidates are familiar with the purpose and characteristics of all the weather instruments listed in the syllabus. Spelling them correctly would also help so that they are not confused with similarly spelt instruments that exist, e.g. ammeter, used to measure electric current in amps.
- (ii) Despite the Insert showing a photograph of an anemometer and the fact that it is listed in the syllabus as an instrument candidates should have studied, few responses accurately described how it worked. Many said the anemometer or the instrument or ‘it’ was spun round by the wind, but the photograph clearly shows that it is cups that are spun – not moved. Few gained credit beyond the spinning cups. They could not describe how the meter measured the wind speed and not many realised that the kilometres on the display screen would be translated into km per hour. Many wasted time by writing about where the anemometer should be located or on intricate, complex detail of the inner workings that eventually produced a recorded wind speed.

Question 2

- (a) A great variety of answers was given here to explain each of the different features of a reliable traffic survey. The mark scheme for this was generous and wide-ranging as there were many possibilities for each of the five features listed. The best answers covered the following for the five rows in the table:
- 1 The key here was to ensure the survey was fair. The survey had to start and end at the same time to ensure the same time period was covered. This would then ensure that data comparisons would be consistent and valid or ‘fair’. To be reliable was not accepted as it was stated twice in the stem of the question.
 - 2 The student needed to count in both directions to ensure the survey had a total for all the traffic, not just one side.
 - 3 It was important to decide and agree on the categories for vehicle types so they were putting the same types in the right categories.
 - 4 The tally method is a quick way to count; possibly quicker than counting/writing numbers – it also provides a written record.
 - 5 The data recording sheet would provide a uniform record from each site that could be compared and would ensure not only common data for analysis but also that it was not forgotten.

- (b) (i) Candidates had no problem in choosing the 'taxi' for the vehicle having the same total at both times, although a few wrote 'None'.
- (ii) Again this was very well done; almost all recognised that the percentage of cars went down after 08:30–09:00. This was important as it was leading to (c)(iii) where the hypothesis related to the number of cars compared to other vehicles throughout the day.
- (iii) This was very well done by almost all candidates who gave the correct tallies of 10, 4 and 3 in the rows and also added the total to 81 for all three marks.
- (c) (i) At this scale, not all these plots were easy, yet most candidates drew their bars very carefully and then shaded the gaps correctly using the key in the right order. There were a few *No Responses* but most candidates gained full credit on this question here. A small number plotted 98 too low.
- (ii) Most could understand and read the bar graphs and the times that each related to, so most identified that 19:30–20:00 was the time when the percentage of taxis was greater than the percentage of motorbikes. A few wrote 7.30–8pm, which was allowed, although the syllabus does require candidates to understand and use the 24-hour clock.
- (iii) This was the more challenging hypothesis to judge on this paper; the other three were fairly straightforward decisions. The key to success with this question was to read the hypothesis carefully and note that the last three words were '**...throughout the day.**' This was vital in making a correct decision because it was clear that cars were in the majority (over 50 per cent) only at two times out of six time periods: 08:30 and 17:30, i.e. at the start and end of the day. Although they were the main vehicle type at 19:30, overall other vehicles took up 57 per cent at that time, i.e. the majority of the bar. Consequently candidates should have judged that the cars were not the main vehicle throughout the day because in the three bars at 10:30, 12:30 and 15:30 they were always at 29 per cent or less compared to the total of the other vehicles.

Many candidates chose *Partially true* which is not supported by the data *throughout the day*. A few decided it was *True* which the data just does not support. This proved to be a good discriminator in that the more able candidates read the hypothesis carefully, took more time with the data and made a decision that related to the wording of the hypothesis. By correctly deciding the hypothesis was *False/Incorrect*, they often went on to gain four marks.

- (iv) This question followed on from the information in the bar graph that showed cars being high at the start and end of the day and lorries/vans being high during the day. Many candidates referred to commuting hours to and from work and/or school to explain the peak hours; they were less successful in their reasons for lorries/vans being high during the day. Those who referred to delivering or transporting goods during working hours gained credit. A few seemed to think that the lorries/vans were carrying tourists during the day or were on the road because there was less traffic then. Some gave vague reasons such as that was the time when lorry drivers work with no reference to, for example, deliveries to shops/factories in the working day.
- (d) This was done well by most although, despite being told that the hypothesis was *True*, some candidates gave their own judgement which sometimes claimed the hypothesis was *False* – this was ignored for marking purposes. Most could identify and list the times when the percentage of coaches was low or increased/decreased, and they also gave a set of comparative data for the data mark with 'only 9% at 08:30' often compared with '47% at 10:30'. Some candidates listed all the percentages but did not describe the trend of coach percentages between the times. Some candidates compared the actual number of coaches, but as the hypothesis referred to percentages, using the numbers was not credited.
- (e) (i) A number of candidates did not attempt this straightforward question on sampling methods. The majority that did chose Systematic and wrote that it used regular intervals such as every 10th person, thus gaining three marks. Random sampling was quite popular and descriptions included asking anyone or using a random number generator – not many could develop their description for three marks as was also the case with a Stratified system where candidates just referred to age or gender groups. Quite a number of sampling methods were suggested that are not in the syllabus; indeed that are not even sampling methods, e.g. do a survey, ask questions, do a tally. Candidates should come into this exam armed with knowledge and understanding of the three key sampling methods – Systematic, Random and Stratified.

- (ii) A traffic-free zone is only introduced by a local council or planning authority if, overall, it would create a better shopping experience for people of all ages and fitness; the intention is to attract people back to town centres, not to create problems that will keep them away. Consequently most candidates who understood this correctly judged that advantages included less air and noise pollution, less traffic congestion and risk of accidents, more space to walk and shop in a pleasant, calm atmosphere. Apart from a few just stating 'less pollution', which is too vague, the advantages were well done with most candidates scoring two marks.

One consequence, however, of a traffic-free zone is that the traffic has to go somewhere else, so it could lead to all the issues relieved in the centre being transferred elsewhere as well as the need for more car parking around the zone and a possible increase in walking time or extra pressure on public transport. Where a few candidates did not do so well was suggesting disadvantages that the planners would not allow in a traffic-free zone. A number of candidates read the expression 'traffic-free' zones too literally and decided that all traffic could never enter the zone – this included all emergency vehicles, delivery vehicles and public transport. This is not the case. The object is to increase access for all groups and increase the income of town centre shops and services.

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*, *Suggest*.

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 decision with evidence from Table 1.1 and Figs. 1.2 and 1.4*.

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 out a question. Some questions are hard to find if they are on pages with a lot of graphs or maps. Make sure you have answered the questions on every page. This applies especially to questions where you are asked to complete tables, diagrams, graphs or maps.

General comments

Most candidates found this examination enabled them to demonstrate what they knew, understood and could do. The overall range of marks went from 0 to 60 out of 60 – a similar range to previous years – with weaker candidates scoring on the practical questions, such as drawing and interpreting graphs and tables, and candidates of higher ability scoring well on the more challenging sections requiring explanation and judgement, especially regarding hypotheses. Most candidates answered **Question 1** slightly 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. Candidates 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 to 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 1(d)(i)** where candidates described a method to measure beach samples rather than a method to collect them, and **Questions 2(a)(i)** and **2(a)(ii)** where some candidates focussed incorrectly on a questionnaire rather than student observations. As in some previous papers, **Questions 1(e)(ii)** and **2(f)** required candidates to suggest suitable investigations 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 or methodology which may apply to all fieldwork, as such suggestions tend to be vague and not worth credit.

Centres should be aware that need to realise that, although this is an Alternative to Coursework examination, candidates will still be expected to show that they know how fieldwork equipment is used and know appropriate fieldwork techniques, even if they have only limited opportunity for fieldwork within the centre. For example, **Questions 1(b)**, **1(c)(i)**, **1(d)(i)**, **1(d)(ii)**, **1(e)(ii)**, **2(a)(ii)** and **2(c)(i)** focussed 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 correctly identified the differences between destructive and constructive waves. Some candidates reversed both pairs of answers and a small number gave their own incorrect answers.
- (b) The question differentiated well between candidates. Better responses gave a succinct description with reference to timing, breaking waves and getting an average frequency. Weaker answers were characterised by vague responses such as 'count the waves'. Many candidates suggested that waves could be counted as they break on the beach or hit an object such as a pole, rock or even a student.
- (c) (i) As in the previous question, candidates varied considerably in their experience of measuring a profile. Candidates who were familiar with the method gave detailed answers which contained many creditable ideas. Some candidates focussed entirely on aspects shown in the photograph rather than developing the method for measuring along a complete profile. Many candidates were familiar with how to use a clinometer accurately by lining it up with points on ranging poles. Relatively few candidates explained that the tape measure should stretch from the back of the beach, shown in the photograph, to the water to create the transect line along which they could measure.
- (ii) Many candidates answered the first conclusion question well. They correctly identified the hypothesis as true and linked their justification to wave frequency and the shape of the beach profile. They used the average wave frequency at the beach as appropriate evidence and stated that this figure was within the range expected for constructive waves. Many candidates also compared the beach profile with that produced by constructive waves. They identified the ridge at about 9 metres and noted that there was no steep slope.
- (d) (i) Most candidates identified a suitable sampling method but their description of the method was often vague and contained little detail about how the method could be used on the beaches. Some candidates suggested using a quadrat to do the sampling but did not describe how they would use it. They did not make it clear whether it would be used to choose the sites or the pebbles at their chosen site. Better responses suggested a systematic sampling method to choose the sites, such as placing a quadrat every five metres up the beach, and then picking pebbles at random from the quadrat.
- (ii) Candidates generally answered the question well. The use of a ruler, callipers and a pebbleometer were all popular choices of equipment. Many candidates also gave details about how the instrument would be used. Some candidates also referred to measuring the longest side or axis of the pebble. Weaker answers did not refer to measuring length but described how to measure the circumference (by wrapping string around the pebble) or volume (by putting the pebble in a container of water).

- (iii) Most candidates drew the bar to the correct height, despite the challenging scale. As usual with a graph completion question, there was a high omission rate of 12%. Some candidates plotted the bar too high as they misread the scale and plotted 8.5 at the position of 9.0 cm.
 - (iv) The second conclusion question was also answered well by many candidates. Most candidates correctly identified that the hypothesis was false. Many then scored two data marks by comparing the mean and median measurements for the two beaches. Some candidates failed to link the destructive beach with the larger pebbles to fully explain their conclusion. Better responses explained the link clearly, naming the two beaches in their explanation and supporting their conclusion with comparative data.
- (e) (i) There was much variation in the quality of answers. Better answers were detailed and clearly distinguished between swash and backwash, frequently including reference to the direction of the prevailing wind and its influence over the swash. Their diagram supported their explanation by showing the 'zig-zag' movement along the beach accurately. In contrast, weaker responses showed no understanding of longshore drift. Their diagrams were often a cross-section of a beach or wave pattern. Where these responses showed the 'zig-zag' pattern, there was no context of the beach and sea, and the arrows were not accurate in terms of the swash being approximately 45° and the backwash being at 90°. The question was omitted by 7% of candidates.
- (ii) A number of candidates did not attempt this question. Like the previous question, it gave good differentiation. Candidates who were familiar with such fieldwork suggested a variety of methods. A common method was to put coloured pebbles in the water and measure how far they moved. A common misconception was that they could use a stopwatch to measure their movement over a few minutes, not realising that the movement would be over a longer period of time and would require searching for the pebbles the next day. The use of floats to measure movement was another popular method. Some candidates were vague in their ideas about throwing floats into the sea, not explaining that it should be where the waves break or near the beach. Weaker answers did not develop their ideas sufficiently, for example, they referred to watching floats or pebbles to see where they would go rather than giving details of measuring the distance and direction moved.

Question 2

- (a) (i) Candidates were usually familiar with the reasons for doing a practice survey, but some answers reflected the candidates' misunderstanding of what they were practising. Appropriate answers referred to getting to know the method, checking for errors and how to make improvements, and improving teamwork. Weaker answers made the mistake of assuming the students were going to do a questionnaire and wrote about checking questions and gaining confidence in how to approach people. They did not realise that the students themselves were going to observe the features. These responses were not acceptable for this survey, neither was testing equipment (which consisted of a form and a pen).
- (ii) Some candidates continued with their misunderstanding that the students were using a questionnaire. However, these candidates could still gain credit for ideas about getting into groups, going to the two locations, agreeing the times of survey, and marking scores on the form. Better responses included these ideas and also explained how each score could be decided before being entered onto the recording form.
- (b) (i) Nearly all candidates correctly plotted the three points. Occasionally the litter score was wrongly plotted. A few candidates plotted crosses rather than dots and so only scored one mark. Again a proportion of candidates omitted this question.
- (ii) Most candidates made the correct conclusion to the hypothesis, that it was true. They supported their decision with evidence based on the graph and made comparative points. The most common data comparison was in total scores for the two areas. A minority of candidates went into irrelevant detail comparing individual categories, which was not required.
- (c) (i) Most candidates named a sampling method and many were able to describe it. The most successful were those who chose systematic sampling. Candidates often find difficulty in describing random sampling without repeating the word 'random', although some candidates did refer to using random numbers, which was accepted.

- (ii) This question proved to be the most challenging on the paper. Many candidates suggested advantages of sampling such as removing bias, a fair test and getting a variety of views, rather than it being necessary because it is impossible to question all people in an area.
- (d) (i) Generally candidates answered the question well. Better responses attempted to compare data results by using words such as higher or lower rather than just stating the comparative statistics, although such statistics were accepted. Weaker responses did not make it clear which group they were referring to. A minority of candidates wrongly compared the two areas rather than the two sets of survey results.
 - (ii) The question was challenging but also proved to be a good discriminator. Many candidates referred to bias, different opinions and backgrounds, and subjective views. Better answers also explained that students were making a single visit, whereas residents had longer experience of the whole area. Weaker answers which were not accepted were suggestions that 'residents lived in the area' and 'students were younger and so their opinions were less valid'.
- (e) (i) Nearly all candidates correctly completed the divided bar graph. There was an omission rate of 5%. Some candidates plotted the data in reverse order.
 - (ii) Many candidates scored well by making valid comparisons and giving supporting data. They recognised that Mossbank received more excellent ratings than Ratcliffe, while Ratcliffe had more very poor ratings. A few candidates included comparison of satisfactory ratings which was not accepted. Some candidates focussed on differences in individual aspects of the local area, which was accepted.
- (f) The final question focussed on an extension task which could be used to investigate housing in the two survey areas. The question discriminated well and resulted in a range of answers showing different levels of competence. The best answers suggested relevant housing features to look at such as building heights, materials, housing types and building condition. Methodology was usually the weakest part of the answer but acceptable suggestions included bi-polar analysis, counting specific features, taking photographs and using secondary data, but these had to be relevant to the housing features being investigated. Methods of recording results included specific types of graph and results table. Again the best answers gave details of how these graphs would be used to display specific data. Weaker answers focussed too much on repeating the methodology already used in the fieldwork such as questionnaire and survey. Some candidates incorrectly referred to features of the environment rather than housing, so focussing on topics such as litter in the area. Others suggested impractical features such as water supply and internal features of the houses, which could not be easily surveyed.