GEOGRAPHY

Paper 0460/11
Geographical Themes 11

Key messages

To perform well on this paper candidates should:

- Bring a pen, ruler, sharp pencil and a calculator to the examination.
- Follow the examination rubric by answering three questions, selecting only one from each section.
- Choose their three questions with care. Read them through and study the resource material provided with them before making a choice.
- Attempt all parts of the questions which they select, including those which involve the completion of graphs, diagrams and maps.
- Read the questions carefully, taking note of command words and words which indicate the context of the question, for example 'describe', 'identify', 'explain' and 'compare'.
- Take note of the focus of all questions and the context – this could include causes or effects, problems or benefits, people or the natural environment, and local or global.
- Learn the definitions of geographical terms in order to define and accurately use them. When defining terms, candidates should not repeat any part of the word being defined in their definition but use completely different wording.
- Consider the mark allocations and answer spaces provided in the question to ensure that answers contain the required detail and number of points.
- Express ideas with clarity, avoiding the use of vague words and terms and using geographical language where appropriate, e.g. north and south rather than above and below.
- Give detailed and relevant answers especially in the final two parts of each question, elaborating on or linking ideas to answer the question set rather than just including general information about the topic.
- Be familiar with using graphs of different types, tables of data, photographs, written extracts, diagrams and maps, making use of keys, scale and compass directions as appropriate. Graph and map completion tasks should be done with great care, using a ruler and sharp pencil to produce the required precision.
- Note whether questions ask candidates to use statistics in their answers. If they do so, full marks can only be obtained if they are used effectively to justify and support points made. If a question states that statistics should not be used, no credit will be awarded for their use.
- Be able to select appropriate case studies and include place specific information in answers, avoiding including too much general information about the topic at the expense of relevant detail. If statistics are used in case studies, they should be relevant and integrated with points made, not simply quoted in isolation.
- Be able to explain processes, using labelled diagram(s), geographical terms and correctly sequenced ideas.

General comments

Most, but not all, candidates followed the rubric by selecting a question from each of ***Sections A***, ***B*** and ***C*** as required and lack of time did not appear to be an issue. Some rubric errors were seen, mainly from weaker candidates, either by selecting two questions within one section, usually ***Section A***, or when random parts of all questions were attempted. The presentation of answers from candidates was usually acceptable and most were legible. A significant number of candidates made use of one or more of the additional pages and most, but not all, carefully indicated the question numbers of those answers which were being continued.

The examination was considered appropriate for the full ability range and it differentiated well between candidates of all levels. As always, excellent Geography was seen from the most able and well prepared candidates and good answers were seen to all questions. Most candidates attempted all parts of their

chosen three questions; however, their degree of success, measured either in terms of correctly interpreting the questions or in producing detailed, accurate answers, was variable. Success on the paper overall depended on producing consistent quality across the paper, especially when answering higher tariff questions which required detailed answers. High quality answers in these sections were characterised by ideas being expressed with clarity, incorporating geographical terminology and developed or linked as appropriate. In contrast, weaker responses tended to be vaguely expressed, often in brief bullet lists, and not always relevant.

Questions 1, **3** and **5** were the most popular questions. Whilst choice of questions was fairly balanced in ***Section C***, within ***Section A*** **Question 1** was far more popular than **Question 2**, and in ***Section B*** **Question 3** was far more popular than **Question 4**. Overall performance was best in ***Section A***, particularly on **Question 1**.

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

Comments on specific questions

Question 1

(a) (i) Answers were mostly correct although some candidates misread the scale and so gave an incorrect figure.

(ii) Many candidates gained both marks although common errors were to reverse the segments or draw the segments on top of the completed bar outline. A few candidates wrongly drew separate lines at 3 and 6.5.

(iii) This was well answered by many candidates who recognised the overall decrease and also correctly identified the trends from the separate areas shown on the graph.

(iv) Many candidates understood the question and wrote clearly about the advantages and disadvantages for LEDCs. However, some weaker responses were about the migrants, not the country of origin. Advantages such as remittances, less pressure on employment, food, etc., were often well defined with the main disadvantages quoted being loss of workers and a loss of skills.

(b) (i) This question was well answered with most candidates using the resource well to gain all three marks.

(ii) This question differentiated well. The question was well understood and generated many detailed answers. Weaker responses tended to make one or two simple points, usually referring to work, whilst others provided a good range of reasons, some of which were developed. There is still the tendency to use generic words or phrases like standard of living, quality of life, resources and services which do not gain credit as they need more precision.

(c) A straightforward case study which differentiated well but some candidates did not read the question carefully. Candidates who noted the highlighted words 'low population density' gave good answers referring to factors such as climate, relief and access. However, some candidates failed to note the highlighted words and so wrote about the reasons for low population growth or out-migration which did not gain credit, unless explanations included ideas such as lack of employment or specified reference to climatic issues such as drought or extreme cold. The best examples seen were on a named desert such as the Sahara, or Amazonia. Canada and Russia were good choices for a case study where the answer was clearly focused on reasons for their low population density.

Question 2

(a) (i) This was usually correctly answered, with wrong answers stating either of the two incorrect options.

(ii) Many candidates did not clearly understand the question, particularly the idea of resources. Correct references to wood, rock and soil were seen at times, but many wrote about other factors, e.g. crops or flat land, or candidates incorrectly wrote about resources which were not visible in the image, for example water.

(iii) Many candidates gained some credit for reference to the valley/gentle slope and/or mountains. Other valid references were made to forests and farmland but many of these were badly expressed and it was evident that site and situation was not well understood.

(iv) This question differentiated well. Answers tended to correctly refer to relief, but reasons such as accessibility and lack of work were rarely seen. Many of the candidates who did refer to valid issues gave brief answers without the development needed to get more than one mark for each reason.

(b) (i) Most candidates were able to interpret the divided bars well, although not all made sufficiently clear comparisons to gain the full three marks. Weaker answers failed to make any comparison, whilst others used statistics despite the instruction not to.

(ii) This question differentiated well. Most candidates gained some credit; however, often only one or two marks as responses tended to lack both breadth and depth. Many answers were not developed beyond simple ideas such as 'quieter' and 'no need to work', although a significant proportion incorrectly suggested that the elderly would need to revert to farming in their retirement.

(c) This was a straightforward and familiar case study which worked well. A few high quality responses were seen from stronger candidates as expected, where they linked or developed their ideas to achieve Level 2. Weaker responses, however, consisted of simple Level 1 lists which lacked any development.

Question 3

(a) (i) Most candidates used the resource well and so gave a correct response.

(ii) This question differentiated well. Some candidates correctly referred to the coast or three or more named islands. Distribution words like linear, curved and clustered were used well by some candidates. Weaker responses tended to refer to plate boundaries despite no plates being shown on the map.

(iii) Despite the simple nature of this question, many candidates failed to gain high scores. Some candidates possibly did not understand 'impacts', whilst others made imprecise references to factors such as buildings and infrastructure which failed to gain credit.

(iv) Some answers demonstrated very good understanding of why people live in areas susceptible to earthquakes. Most candidates were well able to identify reasons such as being near work or friends and family. A common error was to misread the question and write about the advantages of living near volcanoes rather than where earthquakes occur which failed to gain credit. The other common misconception was that people live in earthquake-prone areas as 'they can easily be predicted, and people can therefore fully evacuate before the earthquake'.

(b) (i) Some candidates used the photograph well and described clearly what was seen, particularly the fact that the crater is steep, rocky, deep and curved.

(ii) This question was familiar and well understood, and many candidates answered in detail with several ideas, some of which were developed. Weaker responses tended to make one or two simple points, usually referring to tourism and/or fertile soils, with little if any development, and so failed to gain much credit.

(c) There were some excellent responses to this question, but these were in the minority. The weakest responses ignored the instruction to write about why the volcano erupted and wrote all they knew about a volcano, typically referring to its impacts rather than causes of the eruption. Other candidates realised they had to write about causes but their knowledge was poor. Some knew that it was about plate movement but gained little credit beyond simple Level 1 ideas. Better responses referred to specific plates and the processes resulting in eruptions at plate margins. Amongst the better examples seen were Mt St Helens, Soufriere Hills and Icelandic examples, though in the case of the latter many candidates confused the processes at constructive and destructive margins.

Question 4

(a) (i) This was usually correctly answered, with the wet-and-dry-bulb thermometer being the most common wrong answer.

(ii) This question was generally poorly answered as many candidates described how the instrument worked rather than how it is used to take readings.

(iii) This question was well understood by many candidates. Some answers, however, seemed to show very little understanding of what a Stevenson Screen is, leading to incorrect ideas that a rain gauge, anemometer and wind vane could be kept inside.

(iv) This question differentiated well. Well prepared candidates gave two or three correct answers, though it was relatively rare to see answers scoring three or four marks. Many weaker responses simply referred to the instruments being 'accurate', 'protected' or 'not damaged' rather than showing clear understanding.

(b) (i) Again this question discriminated quite well. Most candidates gained at least one mark for ideas such as 'quick' and 'accurate', although many correct ideas were seen.

(ii) There were some very good answers here and the question differentiated well. Most candidates showed some understanding and made relevant, if simplistic, references to the need to avoid features such as trees, buildings, concrete and areas which are unprotected from people.

(c) This question was well understood by many. Most were able to select an appropriate named equatorial area. Many candidates wrote something about its climate with varying levels of success, as often only simple ideas were given. Candidates achieved Level 2 where they linked description with explanation. Unfortunately, many candidates (not always just the weaker ones) fell into the trap of writing all they knew about equatorial areas, especially the flora and fauna of the rainforests, at the expense of including greater description and explanation of the equatorial climate.

Question 5

(a) (i) The question was generally correctly answered, although some errors were seen.

(ii) This question was usually well answered with many candidates gaining credit as they used the resource effectively.

(iii) This question discriminated well as many candidates were not able to describe distribution effectively and so few gained full marks. Some candidates gained two marks for noting that they occur in the northern hemisphere and also named two continents, or noted that they are MEDCs. Few used distribution descriptors effectively such as uneven and clustered. Common errors were to simply name countries, especially China, and refer to areas being 'above the Equator'. The other error frequently seen was to write about where coal use is not seen, instead of where it is found.

(iv) This should be a straightforward question, but there were many weak responses. Whilst some candidates explained how the use of coal causes global warming and were able to explain the impacts of carbon dioxide from burning fossil fuels such as coal, many gave poor and inaccurate explanations. Reference to ozone depletion was a common incorrect response, far more common than those responses which gave a detailed and clear explanation to score full marks.

(b) (i) Most candidates correctly described the positive relationship shown on the graph and many were able to support their observations using accurate statistics. Some answers, however, failed to quote statistics or did not accurately read the scales on the graph and so did not gain full credit.

(ii) This question differentiated well. It was often well understood and some candidates answered in detail, referring to several ideas, some of which were developed. Weaker answers tended to make one or two simple points, usually referring to the ability to be able to afford to use and/or generate the electricity.

(c) Most candidates chose an appropriate country as a case study, were able to state some examples of renewable energy used there and so understood the task. Differentiation was achieved with weaker responses simply either listing renewable energy types or the benefits of renewable energy whilst others linked their ideas more fully to explain the importance of renewable energy in their chosen country, along with some place detail.

Question 6

(a) (i) This question was usually correctly answered.

(ii) This question was also usually correctly answered, with good attention shown to the place name spellings on the map.

(iii) Mostly correctly answered.

(iv) Most candidates recognised the significance of locational factors such as coal, minerals or the coast. Differentiation was clearly demonstrated between those who simply listed these features for one or two marks and those candidates who explained their importance effectively and so gained three of four marks.

(b) (i) Most candidates who used the resource effectively to compare the industries recognised that the value of car assembly was lower than that of metals production and many were also able to correctly compare the changes in their value, recognising that car assembly increased continuously whilst metal production did not. Statistics were well used by some candidates, although at times these were not sufficiently accurate. Some weaker responses experienced difficulty in expressing the comparisons whilst a few others did not attempt to compare at all.

(ii) This question discriminated well. Stronger responses expressed ideas which considered advantages and disadvantages, and some were able to develop them. Weaker answers tended to know about ‘jobs’ and ‘money’ but were not so familiar with the disadvantages.

(c) Most candidates understood what was required by this question and so selected a valid economic activity. Frequently, however, the location named was a country when it would have been more appropriate to consider a smaller scale. Generally speaking, the few smaller scale examples seen (probably local to the candidates) were impressive. Many of these related to tourism, mining or agriculture. On a larger scale, an exception to this was Amazonia which some candidates used to good effect. Whatever example was chosen, differentiation was shown. Weaker answers listed impacts on flora and fauna, water courses and the atmosphere. Generally, however, the ideas were simple, although occasionally these were developed to achieve Level 2. Good answers linked and/or developed ideas, often with relevant detail and so gained more credit. A common error was to write about the impacts on people rather than considering the natural environment.

GEOGRAPHY

Paper 0460/12
Geographical Themes 12

Key messages

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- Choose their three questions with care. Read them through and study the resource material provided with them before making a choice.
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- Read the questions carefully, taking note of command words and words which indicate the context of the question, for example 'describe', 'identify', 'explain' and 'compare'.
- Take note of the focus of all questions and the context – this could include causes or effects, problems or benefits, people or the natural environment, and local or global.
- Learn the definitions of geographical terms in order to define and accurately use them. When defining terms, candidates should not repeat any part of the word being defined in their definition but use completely different wording.
- Consider the mark allocations and answer spaces provided in the question to ensure that answers contain the required detail and number of points.
- Express ideas with clarity, avoiding the use of vague words and terms and using geographical language where appropriate, e.g. north and south rather than above and below.
- Give detailed and relevant answers especially in the final two parts of each question, elaborating on or linking ideas to answer the question set rather than just including general information about the topic.
- Be familiar with using graphs of different types, tables of data, photographs, written extracts, diagrams and maps, making use of keys, scale and compass directions as appropriate. Graph and map completion tasks should be done with great care, using a ruler and sharp pencil to produce the required precision.
- Note whether questions ask candidates to use statistics in their answers. If they do so, full marks can only be obtained if they are used effectively to justify and support points made. If a question states that statistics should not be used, no credit will be awarded for their use.
- Be able to select appropriate case studies and include place specific information in answers, avoiding including too much general information about the topic at the expense of relevant detail. If statistics are used in case studies, they should be relevant and integrated with points made, not simply quoted in isolation.
- Be able to explain processes, using labelled diagram(s), geographical terms and correctly sequenced ideas.

General comments

Most, but not all, candidates followed the rubric by selecting a question from each of ***Sections A***, ***B*** and ***C*** as required and lack of time did not appear to be an issue. Some rubric errors were seen, mainly from weaker candidates, either by selecting two questions within one section, usually ***Section A***, or when random parts of all questions were attempted. The presentation of answers from candidates was usually acceptable and most were legible. A significant number of candidates made use of one or more of the additional pages and most, but not all, carefully indicated the question numbers of those answers which were being continued.

The examination was considered appropriate for the full ability range and it differentiated well between candidates of all levels. As always, excellent Geography was seen from the most able and well prepared candidates and good answers were seen to all questions. Most candidates attempted all parts of their

chosen three questions; however, their degree of success, measured either in terms of correctly interpreting the questions or in producing detailed, accurate answers, was variable. Success on the paper overall depended on producing consistent quality across the paper, especially when answering higher tariff questions which required detailed answers. High quality answers in these sections were characterised by ideas being expressed with clarity, incorporating geographical terminology and developed or linked as appropriate. In contrast, weaker responses tended to be vaguely expressed, often in brief bullet lists, and not always relevant.

Questions 1, **4** and **6** were the most popular questions. Whilst choice of questions was fairly balanced in ***Sections B*** and ***C***, within ***Section A*** **Question 1** was far more popular than **Question 2**. Overall performance was best in ***Section A***, particularly on **Question 1**, whilst it was weakest in ***Section B***, particularly on **Question 4**.

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

Comments on specific questions:

Question 1

(a) (i) Most candidates correctly identified 11 million but a few read off the birth rate, whilst others saw that the death rate was halfway between 10 and the next number without looking carefully at the scale and gave 10.5.

(ii) This discriminated well with many weaker responses only stating the change in the birth rate (or just using data for birth rate). Stronger answers understood the importance of the relative changes in both birth and death rates and that, for a decline, the death rate must be higher than the birth rate. Some candidates made good use of data in their answers; others, however, only quoted a limited amount or were inaccurate. Candidates tended to be more successful in answering the second part of the question rather than the first part by referring to birth rate being lower than death rate. However, a common error was to state that both birth rate and death rate decreased, or death rate decreased more rapidly which will not always result in population decline.

(iii) Many candidates gave the correct answer and included their calculations, but some weaker responses used an incorrect formula whilst others read incorrect figures from the graph. The latter at least gained some credit for knowing that natural increase is calculated by subtracting death rate from birth rate. Some candidates multiplied the values read from Fig. 1.1 by a thousand, so did not understand the concept of a rate.

(iv) Many candidates answered this well and gave detailed explanations of low birth rates. There were many good answers covering the ideas suggested in the mark scheme, especially references to female emancipation, the use and knowledge of contraceptives, low infant mortality rate and working women. Some candidates lost marks by being too vague, for example by referring to 'people' generally or 'they' instead of women.

(b) (i) Many candidates correctly completed the pie graph, although some lost marks by careless plotting of the dividing lines or incorrect shading, particularly for Turkey. Weaker responses plotted the segments in the wrong order and did not follow the order of the key. Occasionally, weaker responses showed a complete lack of understanding and plotted all three segments by starting at zero or drew them in a part of the graph where data had already been plotted. There were significant numbers of omissions for this question.

(ii) This question differentiated well. High scoring candidates suggested a range of problems facing migrants, many scoring full marks. All ideas suggested in the mark scheme were seen in candidates' answers especially references to unemployment, lack of housing, discrimination, language difficulties, and the difficulty of affording basic needs. Weaker responses tended to just focus on one or two issues, gave inappropriate answers such as 'lack of healthcare, schools or food' or incorrectly focused on problems for the receiving country or its residents rather than the migrants. Simplistic references to migrants not liking the food or weather or getting lost were not credited.

(c) A range of routes were identified, the most popular examples were Mexico to the U.S.A., Syria to Germany and Zimbabwe to South Africa or the U.K. Many answers focused on jobs, the impacts of war and persecution, natural disasters, education and health care. The strongest answers gave specific details about the benefits of the destination country, with the most perceptive candidates elaborating their ideas to give developed answers.

The best answers focused on migration between two specific countries, giving candidates opportunities to include place specific information and/or statistical information. Statistics are helpful in answers such as this providing they are integrated into the answer to illustrate points being made rather than just being included in isolation. For example, literacy statistics may well illustrate that the education is of better quality in the destination country which is a reason for migration; however, if quoted without any context they are of no value. Weaker responses were often lengthy but contained little more than lists of undeveloped simple ideas, e.g. 'country X has more jobs, is safer and has better education and better health care whilst country Y has few jobs, has high crime rates, poor/few schools and a lack of health care'. Such answers only gain credit at Level 1. Answers using words or phrases such as 'services, facilities, resources, standard of living and quality of life' needed to be qualified for any credit.

Question 2

(a) (i) Most candidates correctly identified the squatter settlement, the most common incorrect answer being 'rural settlement'.

(ii) Answers were variable as some candidates did not follow the instruction to use evidence from the photograph; therefore there were some irrelevant answers about issues such as poverty, disease and service provision. Correct answers tended to focus on lack of space/privacy, specified types of pollution, flimsy building materials and specified problems caused by the adjacent body of water.

(iii) Many candidates described inequalities rather than suggesting reasons for them as the question required and some simply referred to issues which they had described in the previous question. Simplistic references to 'better quality of life, housing and living conditions in Y' did not answer the question. Better answers focused on variation in access to named services or essential items as a consequence of differences in levels of education, employment, wealth or income of residents of the two areas. Occasional answers referred to the fact that occupants of settlement X are likely to be more recent migrants than those of settlement Y, a likely contributor to the inequality.

(iv) Many candidates scored high marks by correctly suggesting two types of pollution and explaining why each may occur. Water pollution was the most common response, though air pollution and land/ground pollution were also mentioned in many answers. Reference to household waste disposal was the most common explanation for most of the pollution types, though other answers referred to sewage, vehicles and industries as appropriate to the type of pollution.

(b) (i) Many candidates correctly explained that if people used the Metro, it would reduce the number of cars on the road. The more discerning candidates expanded their responses to consider the greater carrying capacity of the Metro as well as the use of an independent track. Common incorrect responses tended to describe advantages to users of the Metro rather than focussing as required on why it reduces congestion. Some wrongly wrote about other methods of reducing traffic congestion rather than the Metro, then going on to repeat their ideas in the following question.

(ii) The question discriminated well with better answers describing a range of strategies, some of which were developed. The most popular ones suggested were to widen roads, build flyovers/underpasses/bridges, make specified improvements to public transport and install features such as traffic lights or roundabouts. Some more sophisticated answers also referred to park and ride systems, congestion charging and carpooling. Weaker responses tended to just identify one or two valid ideas, some using vague colloquial terms such as 'spaghetti roads' and 'robots'.

(c) Most candidates identified an appropriate urban area, though some wrongly wrote the name of a country. The most popular case studies were Gaborone, Johannesburg and Harare, examples of candidates using local urban settlements; however, other examples were seen including popular textbook examples such as Mumbai and Lima. Many candidates knew the reasons for the migration, but did not fully develop their ideas, thus not scoring higher than Level 1. The better candidates developed ideas about unemployment, education, health care; however, in general,

answers were less focused than those given by candidates to **Question 1(c)** as they tended to be too general and lacking in place detail.

Question 3

(a) (i) Many candidates identified south-west, though common incorrect answers included south-east, north-east or 'from X to Y'.

(ii) Whilst significant numbers of candidates scored both marks, more candidates located the mouth of the river correctly than the confluence. A few confused the mouth with a river's source and marked their 'M' at the watershed/source of a river, and some confused confluence with tributary since their 'C' was halfway along one and not on a confluence. Some seemed to guess wildly or located both labels next to the HEP site symbols, showing no knowledge of the topic. Others placed their symbols fairly close to the mouth and a tributary but not precisely enough for credit. When candidates drew very small letters, they were able to more accurately locate them rather than placing their larger letter in a sufficiently large white space vaguely in the vicinity of the feature. Those who used arrows to the exact spot also were able to effectively mark a precise location.

(iii) Most candidates who answered the question correctly were able to identify the differences in width and steepness. A few answers referred to gradient but few if any to the valley's long profile. Many candidates incorrectly wrote about differences in the river itself rather than the valley. A common error amongst those candidates who did compare differences in the valleys was to describe the valley at 'Y' as U-shaped. Whilst 'X' can correctly be referred to as V-shaped, it is not U-shaped at 'Y' in the lower course of a river as the sides are likely to be gently sloping. U-shaped valleys are found in glaciated upland areas.

(iv) The question differentiated well. Good answers focused on river discharge and velocity and a constant water supply whilst weaker ones typically referred to 'lots of water' or the process of HEP generation rather than focussing on the attributes of the marked sites. Only the most perceptive candidates recognised that the sites were at positions in the valley which could easily be dammed.

(b) (i) The question differentiated well between candidates. Weaker responses tended to focus on features such as the mountain or the vegetation which were not part of the waterfall or tried to describe its formation, the latter then going on to repeat the points they made in the following question. Discerning candidates usually identified the turbulent water, steepness of the land and loose rocks in some way. Others identified layers or steps in the waterfall and how it was split in two. Too many candidates focused incorrectly on how the waterfall was formed with frequent references to typical features of a waterfall such as plunge pool and overhang, neither of which are visible in Fig. 3.2.

(ii) There was a full range of quality of response from very detailed and accurate explanations of the processes forming a waterfall to vague misconceptions about cliffs and soft rocks in the river course with no mention of hard rock. The key to a good answer was to refer to hard rock overlying soft rock, and then the rest tended to logically follow. Some reversed the hard rock overlying the soft rock and what followed tended to be very vague and confused. The best answers explained the formation sequentially and many included a named erosional process, whilst the weakest showed such a lack of knowledge that it appeared this type of landform may not have been studied.

(c) As in the previous question, there was a large difference in quality between answers. High quality answers related erosion and deposition within the meander to both river velocity and the inside/outside of the meander, developing and linking their points in a sequential manner to explain the process clearly and, in most cases, concisely. Many candidates, however, showed little, if any, knowledge about oxbow lakes, especially their formation. Basic knowledge such as deposition on the inner bend and erosion on the outer bend of meanders was lacking and diagrams in many cases showed nothing of relevance, simply confirming their lack of understanding. Those diagrams which did seem to show what an oxbow lake was like were very often so poorly drawn and labelled that few gained credit, with labels sometimes being added but no annotation to either describe the oxbow lake or explain its formation as required.

Question 4

(a) (i) Whilst many candidates identified the correct statement, there were significant numbers who chose incorrectly, most either selecting 'the landscape consists only of sand dunes' or 'climate is the same all year round'. There were a few omissions and some candidates selected two or more options.

(ii) Whilst perceptive candidates scored one or both marks with correct ideas from the mark scheme, many others missed the key word 'location' and gave irrelevant answers, for example about the size of the deserts or features such as the ocean current or prevailing wind. Also, many candidates did not use directions with many references to 'above the Tropic of Cancer' and 'on the left hand side of Mexico', both of which are unacceptable in any Geography examination.

(iii) The question discriminated well. Good answers gave a clear explanation of the temperature difference, identifying the lack of cloud cover and its impact on day and night temperatures. Some candidates tried to explain the difference by referring to ocean current and prevailing wind which showed no understanding and had no relevance to the question. Many candidates thought the difference was due only to the sun shining in the day and not at night, and there were few correct references to heat escaping at night due to lack of cloud cover.

(iv) Very few candidates scored marks for this question. The common valid ideas given were references to the Tropic of Cancer, high pressure and prevailing winds being dry, but these were not in the majority. References to the Tropic of Cancer rarely showed any understanding of how the circulation of air produced cooler, sinking air and high air pressure which results in dry conditions. References to the prevailing winds rarely showed an understanding that these were blowing from land to sea and would therefore not pick up moisture.

Many who did refer to prevailing winds and the ocean current showed no understanding of their significance, many suggesting confused ideas such as 'the prevailing winds blew away the rain from the desert' or 'the cold ocean current doesn't blow across the desert'.

(b) (i) Answers varied in quality. Better candidates answered succinctly by identifying thorns, waxy surface and thick/fleshy stem. Many candidates suggested features like roots rather than identifying features not shown in the photograph. Many went on to give irrelevant explanations as to why they had these features.

(ii) This question discriminated well. The best answers included detailed descriptions of root systems, lack of stomata, widely spaced plants and plants growing near an oasis. Weaker answers repeated ideas from the previous section despite the emphasis on 'other' methods in the question. Many candidates again focused incorrectly on explaining the features.

(c) Answers varied in quality from detailed, high quality answers about the climate of areas such as the Amazon, which linked description and explanation well, to the many answers inexplicably describing the 'hot desert' climate rather than the 'equatorial' climate which was clearly emboldened in the question. Weaker answers with the correct focus were typically vague and tended to score up to three marks for simple descriptive points. Many candidates wrote about the vegetation and other aspects of a rainforest ecosystem at the expense of focussing on climate, especially an explanation of it.

Question 5

(a) (i) Most candidates correctly identified New Zealand. Other answers were selected by a small number of candidates, with no obvious pattern.

(ii) Many candidates gave the correct order. A few candidates mixed up the order of China, Tanzania and India or reversed the order of all four countries.

(iii) This question differentiated well. Most candidates stated that literacy was higher in North America and many gave accurate statistics to support this statement. Fewer answers referred to the variation in the range of literacy levels within the two continents. Some weaker answers wrongly referred to 'the percentage of people over 65' rather than literacy percentages.

(iv) The question differentiated well, with successful answers identifying measurable development indicators. Many candidates who gave correct indicators gave valid explanations of how they showed level of development, usually in simple but acceptable terms such as 'the higher the GDP/HDI/percentage employed in the tertiary sector, etc., the more developed the country'. Some good answers gave more detailed explanations of how indicators such as life expectancy showed development by reflecting levels of health care in the country. Many weaker answers were seen, including those which were far too vague (and therefore not measurable) such as 'education', 'standard of living' or 'jobs'. Another common error was to refer to literacy since the question asked for 'other development indicators'.

(b) (i) The question provided clear differentiation. Good answers used the graph to compare employment sectors in 1970 and 2020, particularly the primary and secondary sectors. Some used statistics, despite the instruction not to. Some weaker responses misread the triangular graph, but some were still able to identify how the highest and lowest sectors changed between the two years.

(ii) Answers varied in quality. Many candidates gave details about changes in technology but did not link them to employment structure, for example 'machines take over from people which means more unemployment'. Others repeated ideas from the previous question that there was less primary and/or secondary employment but did not explain how changes in technology resulted in such trends. The most common correct responses referred to the impact of mechanisation and automation on the percentages employed in the primary and secondary sectors. However, there was little valid reference to tertiary or quaternary sectors.

(c) Generally this case study was not well answered. Most candidates, however, were able to select a valid example and the most popular ones were Apple, Toyota, Nokia, McDonald's, Walmart and Nike. Many were able to achieve Level 1 for simple descriptive ideas, but only the most perceptive were able to develop their ideas beyond that or link ideas together. Some focused incorrectly on benefits and disadvantages to the countries and employees rather than developing their descriptions of the characteristics and global links of the TNCs.

Question 6

(a) (i) Answers were mainly correct.

(ii) Answers were generally weak and many candidates did not describe distribution accurately, instead doing little more than referring to specific countries. Relatively few candidates referred to the distribution being linear or clustered or uneven. Many answers were vague in reference to lines of latitude and areas of Africa, such as 'North Africa', which were not precise enough. Better candidates did refer to specific coastal areas, though significant numbers used the word 'edge' rather than 'coast'.

(iii) This question differentiated well. Most candidates were able to acknowledge that the risk of desertification was higher in Nigeria and some recognised the greater variation in levels of risk in Angola. Good answers consisted of detailed comparisons between the different levels of risk in the two countries. Marks were lost, however, when candidates failed to make comparative statements.

(iv) Many candidates answered the question well. They linked problems to agriculture and lack of food and water supplies, and some referred to consequences such as famine and migration. Some candidates mixed up desertification with deforestation or simply wrote about the effects of increasing temperatures. Others did not make it clear that they were writing about impacts on the people rather than the natural environment, for example by referring to 'plants and animals' rather than 'crops and livestock/farm animals'.

(b) (i) Many candidates scored three marks by correctly interpreting the graph and referring clearly to two changes with accurate statistics. Weaker answers mixed up the greenhouse gases or gave incorrect figures with a tendency to use words such as 'almost' or 'just over' rather than reading the scale precisely.

(ii) The question was a good differentiator. Strong answers gave detailed explanations, with reference to specific greenhouse gases and their sources and the build-up in the atmosphere which prevents re-radiation of the sun's rays. Surprisingly large numbers of weaker responses confused ozone layer destruction with global warming and referred incorrectly to increased heating through more UV light entering the atmosphere. Many also often expressed the wrong idea that it is the gases

which are trapped in the atmosphere rather than the long-wave radiation from the Earth's surface being trapped by the gases.

(c) Answers varied in quality and the question differentiated well. Whilst weaker answers either wrote about the causes of global warming rather than the impacts or focused on ozone depletion, air pollution and acid rain, all of which were irrelevant, others briefly mentioned relevant issues such as ice melting and climatic issues such as drought or flooding, typically at Level 1. The many good answers described a variety of impacts in detail, developing or linking ideas such as melting ice caps, rising sea level and lowland or coastal flooding. The effects on habitats and ecosystems were often described well. Common place references were the Maldives, various Arctic regions, Bangladesh and the Great Barrier Reef.

GEOGRAPHY

Paper 0460/13
Geographical Themes 13

Key messages

To perform well on this paper candidates should:

- Bring a pen, ruler, sharp pencil and a calculator to the examination.
- Follow the examination rubric by answering three questions, selecting only one from each section.
- Choose their three questions with care. Read them through and study the resource material provided with them before making a choice.
- Attempt all parts of the questions which they select, including those which involve the completion of graphs, diagrams and maps.
- Read the questions carefully, taking note of command words and words which indicate the context of the question, for example 'describe', 'identify', 'explain' and 'compare'.
- Take note of the focus of all questions and the context – this could include causes or effects, problems or benefits, people or the natural environment, and local or global.
- Learn the definitions of geographical terms in order to define and accurately use them. When defining terms, candidates should not repeat any part of the word being defined in their definition but use completely different wording.
- Consider the mark allocations and answer spaces provided in the question to ensure that answers contain the required detail and number of points.
- Express ideas with clarity, avoiding the use of vague words and terms and using geographical language where appropriate, e.g. north and south rather than above and below.
- Give detailed and relevant answers especially in the final two parts of each question, elaborating on or linking ideas to answer the question set rather than just including general information about the topic.
- Be familiar with using graphs of different types, tables of data, photographs, written extracts, diagrams and maps, making use of keys, scale and compass directions as appropriate. Graph and map completion tasks should be done with great care, using a ruler and sharp pencil to produce the required precision.
- Note whether questions ask candidates to use statistics in their answers. If they do so, full marks can only be obtained if they are used effectively to justify and support points made. If a question states that statistics should not be used, no credit will be awarded for their use.
- Be able to select appropriate case studies and include place specific information in answers, avoiding including too much general information about the topic at the expense of relevant detail. If statistics are used in case studies, they should be relevant and integrated with points made, not simply quoted in isolation.
- Be able to explain processes, using labelled diagram(s), geographical terms and correctly sequenced ideas.

General comments

Most, but not all, candidates followed the rubric by selecting a question from each of ***Sections A***, ***B*** and ***C*** as required and lack of time did not appear to be an issue. Some rubric errors were seen, mainly from weaker candidates, either by selecting two questions within one section, usually ***Section A***, or when random parts of all questions were attempted. The presentation of answers from candidates was usually acceptable and most were legible. A significant number of candidates made use of one or more of the additional pages and most, but not all, carefully indicated the question numbers of those answers which were being continued.

The examination was considered appropriate for the full ability range and it differentiated well between candidates of all levels. As always, excellent Geography was seen from the most able and well prepared candidates and good answers were seen to all questions. Most candidates attempted all parts of their

chosen three questions; however, their degree of success, measured either in terms of correctly interpreting the questions or in producing detailed, accurate answers, was variable. Success on the paper overall depended on producing consistent quality across the paper, especially when answering higher tariff questions which required detailed answers. High quality answers in these sections were characterised by ideas being expressed with clarity, incorporating geographical terminology and developed or linked as appropriate. In contrast, weaker responses tended to be vaguely expressed, often in brief bullet lists, and not always relevant.

Questions 1, **4** and **5** were the most popular questions. Overall performance was best in ***Section A***, particularly on **Question 1**, whilst it was weakest in ***Section B***, particularly on **Question 3.**

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

Comments on specific questions

Question 1

(a) (i) Most gained the simple mark here by reading the graph accurately.

(ii) Many candidates gained both marks although a few chose one or two incorrect options, most often the first and last answers. A few candidates failed to read the question carefully and only ticked one option.

(iii) Many candidates did not answer the question. The focus was on the change in the overall population between the two years and very few actually referred to this change. Many answers focused only on the graph (natural increase/net migration) and quoted the figures which could not receive credit as they did not support the overall population change.

(iv) This question was well answered and many gained full marks. There were many correct references to the fact that women are now educated/have careers and contraception is available. A small minority discussed the reasons for falling death rates which received no credit.

(b) (i) Many pie charts were completed to an excellent standard. However, for some candidates the order of segments was not followed correctly. Some shading could have been better presented and it is very important to follow the key as valuable marks were lost when the shading was not the correct orientation for the Cook Islands.

(ii) This question differentiated well. Generally the question was well understood and there were detailed answers from many candidates. Weaker responses tended to make one or two simple points, usually referring to the advantage of (low cost) workers and various perceived disadvantages expressed vaguely, whilst others provided a good range of reasons, some of which were developed. Some candidates made the mistake of writing about the advantages and disadvantages for migrants rather than 'for Auckland', despite the emboldening in the question stem.

(c) There were many excellent responses to a question on a familiar topic and a range of valid examples were used, such as Mexico to the USA, although many others were used to good effect, particularly migration to Singapore and Malaysia and from Asian countries to the Middle East, examples familiar to this cohort. Many high quality answers were seen from stronger candidates as expected, whilst weaker responses consisted of simple Level 1 lists of ideas.

Question 2

(a)(i) This was correctly answered by the majority of candidates.

(ii) This was answered well, and the graph was well understood.

(iii) Again, there were no problems here at all. Candidates were able to extract the differences very easily and describe these in words rather than using statistics as instructed in the question.

(iv) For what should have been a straightforward question candidates did not achieve very high marks. Many did not actually refer to public transport and so did not get credit. Others only gave two ideas, yet there were four marks available. Better answers were precise but others gave answers which were too vague; these included reference to 'poor public transport' and 'poor roads', along with unspecified types of pollution.

(b)(i) A considerable number of good responses achieved full marks. Responses tended to use the evidence in the photograph well with problems including lack of space and/or privacy, noise from neighbours and/or vehicles, and litter being common. Answers needed to refer to problems, hence vague references to 'close together' and 'high density', whilst valid observations, did not score as they did not describe why these were problems.

(ii) Where candidates understood the term 'retail function' they developed their answers well. Many, however, incorrectly wrote lengthy answers about what ports do without linking this to the need for the provision of shops.

(c) Few, if any, really good quality case studies were seen here, especially ones which referred in detail to specific schemes of the type listed in the content guide (e.g. site and services scheme, self-help scheme, etc.). Even the best answers tended to do little more than write about generic methods such as building low cost houses or improving existing ones. Some of the answers seen considered irrelevant detail about other improvements in the urban area, for example to services such as education, policing and health care, and the creation of jobs – all of which were irrelevant as the question was about strategies used to improve housing.

Question 3

(a)(i) Usually correctly answered.

(ii) This was usually well answered, although some candidates incorrectly stated stump rather than stack.

(iii) Good understanding was demonstrated on the differences between constructive and destructive waves. Common responses referred to swash, backwash, erosion, deposition and frequency ideas. There were also incorrect references to gradient and power which did not receive any credit.

(iv) This question differentiated well despite the apparent simplicity of the task. There were some irrelevant references to flooding rather than erosion, but most candidates tended to gain at least one mark, usually with reference to damage to houses.

(b)(i) The photograph was well used by most candidates with some good responses, a considerable number with full marks. Steep, (layers of) rocks and the cave were common correct observations.

(ii) This question differentiated well. Well prepared candidates understood the processes and explained the sequence well, referring to one or more named processes. Many answers, however, offered little other than reference to a type of erosion. Some went on to describe the full sequence of development, including arch, stack and stump, much of which was irrelevant.

(c) Whilst some candidates named countries, most chose an appropriate smaller area of coast, gave some examples of benefits of living there, especially those linked to tourism, and understood the task. Differentiation was achieved with weaker responses simply listing benefits whilst other stronger answers linked their ideas or developed them more fully, with some attempting to include place detail.

Question 4

(a)(i) Answers were mainly correct and comparative.

(ii) Y was commonly answered correctly but there were some variations with X.

(iii) Well prepared candidates showed good knowledge and referred correctly to two or three ideas, particularly the height, width and type of lava. Others showed less understanding and confused their ideas with composite volcanoes. Vague words like long and big were sometimes used which failed to gain credit.

(iv) There were many good answers. This had clearly been taught very well and revised thoroughly by candidates. The process was described very clearly and four marks were often achieved very easily.

(b)(i) Most candidates observed the positive relationship shown and some were able to support their observations using accurate ranges of statistics. Not all used statistics and some were not accurate but most candidates gained some credit and many gained two or three marks.

(ii) Many excellent full mark responses were seen here with clear accounts of strategies used to reduce the impact of volcanic eruptions. Most candidates showed some understanding and made relevant references to appropriate strategies. Differentiation was achieved through differences in the breadth and depth of responses, with weaker answers tending to not go beyond simple ideas such as evacuation and warnings.

(c) The key term in the question was opportunities and many referred to fertile soil, jobs in tourism and renewable energy. These, however, are simple Level 1 statements and it is important to not just give a list of simple statements. However, it was encouraging to see some candidates developing these ideas further with many referring to valid examples.

Question 5

(a)(i) This was usually well answered by the majority of candidates; however, a few candidates incorrectly ticked two answers and so failed to gain any credit.

(ii) Many candidates scored both marks with correct directions and distances within the large tolerance allowed.

(iii) The key idea here was 'economically' which was emboldened. Perceptive candidates were able to refer to each feature shown in the three images and comment on how each benefits the area economically without repetition. Others referred to the features in the images but wrote about other benefits they provided rather than economic ones, whilst some wrote about economic benefits generally without mentioning the features in the images.

(iv) Responses from many candidates were disappointing. Whilst some knew what infrastructure consists of and made pertinent suggestions, many others wrote generic answers about the development and benefits of tourism, sometimes repeating answers given in **part (iii)**.

(b)(i) This was generally well answered and many candidates scored full marks with reference to May to September having the highest temperature and lowest rainfall, supported with valid statistics. A small number of candidates misread the climate graph, assuming the bars showed temperature and that the line showed rainfall, and so failed to gain credit.

(ii) This question differentiated well. The question was well understood by most candidates who answered in detail, referring to several ideas, some of which were developed. Weaker responses tended to make one or two simple points, usually referring to issues such as noise and litter. An error made by some was to write in general terms about the problems caused by tourism rather than focussing on problems linked with the seasonality of tourism. For example, seasonal employment and pressure on specified resources such as water and electricity are key issues missed by many candidates, some of whom wrote instead about irrelevant general problems faced by any tourist resort such as loss of culture or inappropriate behaviour of tourists.

(c) Whilst some candidates named countries, most chose an appropriate smaller area or tourist resort, gave some examples of attractions, and understood the task. Differentiation was achieved with weaker answers simply either listing or naming attractions whilst others described them in greater detail, sometimes with place specific detail, usually in the form of named attractions. Attractions of the physical landscape seemed to be more common in answers than human attractions as in most cases candidates selected an area of attractive scenery. Those who chose a historical or cultural tourist venue with limited attractions, all of a similar type, disadvantaged themselves somewhat by their choice.

Question 6

(a)(i) A few candidates tried to use the word 'renew' in their definitions or just give examples, but most answers were correct and gained the mark.

(ii) Usually correctly answered.

(iii) Good answers linked a type of renewable energy with the physical conditions required for its generation (e.g. HEP and fast flowing water) or referred to the presence or absence of other sources of energy. Weaker answers either tended to focus on little more than cost and levels of technology whilst others misunderstood what was required and wrote about the advantages of renewable energy.

(iv) This was well answered by many candidates as many were able to make reference to issues such as global warming, acid rain, water and air pollution, as well as threats to flora and fauna. Whilst some knew about global warming and the impact of carbon dioxide from burning fossil fuels such as coal, some had misconceptions, especially in relation to ozone depletion. Another error made by some candidates was to write about problems such as the exhaustion of fossil fuels or the problems caused to people by their use rather than impacts on the natural environment.

(b)(i) Most candidates who tried to compare energy used in industry and transport gained marks by not only comparing the relative rates of increase but also recognising that more energy was used throughout the period by industry than transport. Some weaker responses experienced difficulty in expressing the comparisons whilst a few did not attempt to compare at all or used statistics despite the instruction not to do so, as a clear comparison was required using words rather than statistics here.

(ii) This question differentiated well. Better answers showed a good understanding of what an industrial system is, making appropriate reference to inputs, processes and outputs. Some candidates did this in a generic way whilst others used an actual example such as the iron and steel industry. Both approaches were acceptable.

(c) Most candidates understood the question and selected a valid example. There were many successful textbook examples used of specific factories such as Toyota at Derby or Pipri in Pakistan. A small number of candidates gave really impressive local examples which often work well for this type of case study. Whatever example was chosen, the question differentiated well. Weaker answers listed factors such as labour, raw materials/components, transport and markets with little elaboration, though some were occasionally developed to reach Level 2. Better candidates wrote in detail, linking and/or developing ideas and gaining high marks, especially if the location of the factory or industrial zone was precise and usually small scale. In this respect, examples such as Toyota at Derby worked better than those such as Nike in Vietnam.

GEOGRAPHY

Paper 0460/21
Geographical Skills 21

Key messages

- All questions were accessible; however, it was very evident that 'coasts' was a part of the syllabus that was not very well understood by candidates.
- Where a question is asking for statistics, these should be read carefully from the resource so that they are accurate. Terms like 'about' and 'nearly' should not be used with statistics and the figures should not be rounded up or down.
- Many candidates do not understand the concept of an overall pattern when looking at graphs. It is important that they do not look at every single aspect of the data but pick out key features, patterns, or trends, usually informed by the number of marks available.
- The term 'resources' was used regularly by candidates, but it is too vague and was not credited.

General comments

The general response to this paper was encouraging and resulted in higher marks than in previous series. The use of geographical terminology had improved, although powers of expression can be weak.

Most questions in the paper were attempted, with the exception of coasts. If no response was given, it was apparent that this was because the candidate simply did not have the knowledge to answer the question rather than time constraints. Although candidates should have been able to access the physical and human questions equally, the latter proved far more successful.

Comments on specific questions

Question 1

(a) Candidates were able to score highly on this section and had good skills in using the map key. The type of road at **A** was a *main road/dual carriageway/A road/A78*; feature **B** was a *school* (not an important building); feature **C** was a *recreation/leisure/sports centre*; the land use at **D** was *scrub/bracken/heath/rough grassland*; and the height above sea level of the spot height at **E** was *159m*.

(b) The response to the six-figure grid reference in **part (i)** was mixed despite there being four acceptable answers of *234742/234743/235742/235743*. Some candidates still do not know how to use grid references and some confused the order that the numbers are written in.

The distance between the two railway stations in **part (ii)** was well attempted providing the measurement was taken along the railway line and not in a straight line. The correct answer was *1950m* (1900–2000m was creditable).

The compass bearing in **part (iii)** of *51–54 degrees* was less accurately answered and candidates would benefit from more practice.

(c) There were mixed responses to this question with very few candidates gaining full marks. There was often a lack of understanding of the term relief which meant some candidates could not access the question in any depth. Instead, answers referred to any features that could be seen on the extract, including human features. Marks were generally gained for describing the area as *steep* and identifying the highest point as *274m*. Candidates tended to refer to the area as *mountainous* rather than *hilly*, which it was not. Some identified the presence of *v-shaped valleys*. Only the

strongest candidates were able to describe changes in height and gradient with distance from the railway line, and even fewer referred to the direction that the slopes face.

(d) This was a much more straightforward question than extended map skills questions in previous papers. Most candidates were able to identify at least some physical and human features of the coastline using the labels and the key. The physical features of *bay*, *sand/shingle/beach*, *rocks* and *scree/boulders/outcrop* were common responses. *Headland* and *mud* were seen less frequently. Whilst there were some very good responses for human features too, many failed to score in this section as they concentrated on features that were not actually linked to the coast, for example, main road, parking and garden centre. Creditable responses were *jetty*, *lighthouse*, *pier*, *beacon*, *slipway*, *landing stage* and *dock/quay/port*.

Question 2

(a) In **part (i)** most candidates attempted to write a year-by-year account of population growth between 1961 and 2019. This made it difficult to achieve marks as the question asked for the overall pattern of population growth. Relatively few identified the *overall increase* or the *fluctuation*. Instead, the most common mark was for *two troughs*, which had to be inferred from the candidate listing two decreases somewhere in their response. Likewise, not enough candidates referenced that the *highest growth was in 2008 and the lowest growth was in 1973*. The question stem asked for the use of statistics and 1 mark was reserved for this. Candidates could use the *starting figure of 1.9 per cent and ending figure of 3.1 per cent* or that the *highest growth was 3.3 per cent and the lowest growth was 1.0 per cent*. Not all used the units which was needed at least once in the answer.

Providing the question was understood, candidates demonstrated a good understanding of the factors affecting population decline in **part (ii)**. The most obvious answer was that *death rate increases* and *birth rate decreases*. However, candidates seemed to prefer to state specific *death rate factors (disease/war)* or *birth rate factors (increased use of contraception/abortion/later marriages/government policy)*. Unfortunately, some just listed two death rate or birth rate factors. *Emigration* could also be credited, but more often it was just referred to as migration which was too vague. Despite this, the question was well answered.

(b) Good understanding of population dynamics continued in this question where candidates had to suggest the problems caused by high population growth. Responses tended to include *poverty*, *hunger*, *stress on water*, *stress on hospitals/education* and *lack of jobs*. Credit was also given for *diseases spreading more quickly*, *shortage of housing*, *traffic congestion*, *litter* and *an increase in air/water/noise pollution*. *Political instability* would have been credited but was not seen. Too many stated ‘lack of resources’ and ‘overpopulation’, neither of which warranted a mark.

Question 3

(a) This question used coloured maps in the insert which showed land use in Birmingham in 1700 and 2014. Both parts were very well answered and a high proportion of candidates scored full marks. In this part, the key was used to describe the land use in 1700. Some answered using simple statements and others preferred a much more detailed description, often using more writing space than allocated. Most candidates gained full marks with *lots of fields*, *offices and shops at the centre*, *roads (leading in to the centre)* and *residential surrounding the centre*. Few referenced *industry on the outskirts* and *education/medical/religious in the west*.

(b) Candidates continued to demonstrate very good understanding of the maps, this time describing how land use had changed by 2014. Few identified the main change that the *settlement has grown*; however, most noted that there were *no fields left*. The identification of three new land uses was consistently recognised (*railway/railway station, canals* and *recreation and leisure*) but candidates did need to ensure they recognised that these were not there in 1700 rather than there just being more of them. Credit was also given for *more offices and shops*, *more industrial* and *more roads* as well as the *residential areas moving outwards*.

Question 4

(a) This question proved challenging for many despite using a photographic resource. The image was of a small area in Accra, Ghana, where pollution was evident. While some candidates could identify 2/3 types of pollution from the image, they sometimes did not describe what caused the pollution,

for example, *water pollution from rubbish* or *air pollution from smoke* (not gases). Many answers included soil pollution and the impact on ecosystems which were not credited as they could not be seen directly in the photograph. The mark scheme was generous in allowing rubbish to be used as the justification for water pollution and visual pollution, and for smoke to be used as the justification for air pollution and an alternative for visual pollution.

(b) It became clear that candidates had not studied the environmental risks of economic development in any depth and very few scored well. Answers were almost universally vague and generic with little geographical understanding. Better responses that were seen included the *lack of rubbish collection/bins*, *nowhere to dispose of rubbish* and the *lack of ability to purchase environmentally friendly goods*. Whilst many said the *population was large* and they *did not have an education*, very few linked this to the question by adding *more waste is generated* and *lack of knowledge on the consequences of pollution*. Answers related to the *lack of sewage system*, *many industries*, *many cars* and *burning for domestic purposes* were very rare.

Question 5

(a) Only a minority of candidates seemed to have a good understanding of coasts, in this instance coastal management techniques. *Sea wall* for photograph **C** was undoubtedly the most credited response. **A** were *gabions (cages filled with rocks* was acceptable); **B** was *beach nourishment/replenishment*; **D** was *rip rap*/*rock armour*; and **E** was *groynes*. Some candidates did not grasp that the letters in the photograph corresponded to the letters in the answer booklet and therefore wrote the management techniques at random.

(b) Few provided feasible diagrams to show longshore drift. Where they did, labels including *the prevailing wind direction*, *the swash approaching the beach at an angle*, *the backwash moving perpendicular to the beach*, and the *zig-zag pattern* created by this movement were clearly shown. Unfortunately, these still often contained inaccuracies, such as the swash being perpendicular to the beach and the backwash at an angle. For those achieving no marks in this question, a variety of diagrams were produced but they showed no resemblance to longshore drift; instead, they showed the formation of bays and headlands, stumps and even the features of river systems. There was a high no-response rate to this question.

Question 6

(a) Almost all gained the mark in **part (i)** for *20 per cent*.

Whilst the majority also gained a mark for **part (ii)**, far too many graphs were drawn freehand and as a result were untidy, this meant that they were sometimes also inaccurate. Candidates are told they need a ruler in the instructions on the answer booklet and should therefore use it, preferably with an HB pencil. The dividing line was at *85 per cent* and the shading should match the key.

(b) For the most part, this was a very well answered question in which candidates did far better than in previous 'compare' style questions. If candidates did not gain credit it was generally due to the use of inaccurate statistics. Sometimes the statistics were completely wrong but more often they were out by less than 5 *per cent* having been carelessly read. Various aspects of the graph needed to be referred to for full marks, with statistics also required. Overall, *the level of learning in East Asia was better*, as there was *more good learning in East Asia*, *78 per cent compared to 45 per cent*. There was *more poor learning in South Asia*, *50 per cent compared to 22 per cent*, and *South Asia also had 5 per cent of children out of school whereas all children attended in East Asia*. A small number of candidates did not read the question stem and used Sub-Saharan Africa in the comparison.

GEOGRAPHY

Paper 0460/22
Geographical Skills 22

Key messages

- Candidates should not read the key in isolation from the map itself in **Question 1**. In **part (c)**, for instance, several candidates identified features from the key under 'Tourist and Leisure Information' that were not present on the map. Similarly, in **part (d)(ii)** the main road on the map extract is the A735, not the exemplar given in the key, the A30.
- Many candidates showed that in **Question 1** they needed more practice on distance calculations, bearings using the 16-point compass, and identifying features on and completing a cross section.
- It is important to read questions carefully. For example, candidates should take note of any emboldened words, e.g. in **Question 1(e)** the word 'not' specifically excluded comments on Dunlop and Stewarton, and in **Question 3(a)** 'only' meant that candidates should only refer to features they can see in **Fig. 3.1**.
- Candidates should study the command words in each question carefully. For instance, in **Question 1** candidates were required to 'describe and explain' and not just 'describe'. **Question 4(b)** requires the candidate to 'compare' rather than describe two variables separately.
- Candidates should practise their understanding of key geographical terms to avoid misunderstanding the question, for example, 'pattern of rural settlement' in **Question 1(e), '**threshold' in **Question 3(a)(ii)**, and 'site' in **Question 4(c).**
- Many candidates should be more precise when using geographical terminology. Terms such as 'infrastructure', 'pollution' and 'multiplier effect', all used in responses to **Question 6(c)**, needed further amplification.
- Geographical descriptions should be used when describing map distributions. For example, in **Question 5(b)** 'north' and 'south' should be used and not 'above' and 'below' the equator.
- It is important that data is read off graphs and maps accurately. For instance, the highest peak in **Fig. 5.1** (**Question 5(a)**) occurred in 1931. Furthermore, candidates should use data given to them and not change it, for instance, in **Fig. 4.5** (**Question 4(b)**) the categories given in the key should be used, for example, the range of 3–5 m/s, not just 5.
- When writing on the extra pages, candidates should make sure the question part is clearly stated.

General comments

The paper, as a whole, discriminated well between the candidates, with a wide range of marks attained. High quality responses were seen for all questions, although weaker candidates seemed to struggle on the longer written answers. The better candidates were given opportunity to demonstrate their ability and made good use of geographical terminology. Weaker responses showed some geographical knowledge and understanding, but also gave some rather vague responses: the use of geographical terminology, for instance, could have been more precise. All candidates demonstrated an ability to successfully interpret maps and photographs, but the interpretation of graphs was rather variable in quality. Candidates performed equally well across most of the questions, with **Questions 1(a)** and **4(c)** being done particularly well and **Questions 1(e)** and **5(a)** less so. Although there was little evidence that candidates ran out of time to finish the paper, some did not attempt one or two question parts, especially **Question 1(d)(iii)**. Most candidates made good use of the space available for their answers and only used the additional pages when some or all of an answer had been crossed out.

Comments on specific questions

Question 1

(a) Candidates generally scored well on this question demonstrating an ability to find features on the map and identify them using the key. The type of road at **A** was 'a road generally more than 4

metres wide' and the land use at **B** was coniferous trees. Some candidates needed to go beyond stating just 'vegetation' in the latter. The feature at **C** was a school and since 'Sch' was clearly marked on **Fig. 1**, just 'buildings' or 'important buildings' was not accepted. The height above sea level of the contour at **D** was 150 m.

(b) Some candidates found parts of **(b)** challenging. The distance along the railway line between the stations at Dunlop and Stewarton was 3.7 kms; responses between 3.6 and 3.8 kilometres were credited but a wide variety of answers were given, with some being out by a factor of ten or more. The compass direction from the railway station at Dunlop to the one at Stewarton was SSE; since it is expected for candidates to know the sixteen-point compass, SE, which was commonly stated, was not credited. The 6-figure grid reference in **part (iii)** was 417460 but given the fact that this was difficult to judge, 417461, 418460 and 418461 were, on this occasion, all accepted.

(c) This question was well answered with the majority of candidates correctly identifying three tourist facilities shown on the map extract such as picnic site, walks or trails, leisure centre, public houses or hotels. Most errors occurred where candidates used the key for 'Tourist and Leisure Information' and identified some features at random that were not present on the map, for example, boat trips, caravan or camp site and museum.

(d) This question, based on a cross-section, proved difficult for many candidates, with a significant number omitting **part (iii)**. In **part (i)**, some candidates identified the track correctly but then failed to associate it with the railway as per the key. Other candidates transposed this response with **part (ii)** and identified the feature at **X** as the main road and the feature at **Y** as the railway, instead of the other way round. In **part (iii)**, although many drew a gently sloping line downward towards the 400475 vertical axis, it finished incorrectly at 110 m or above. The line was expected to hit this axis at approximately 105 m, although a generous tolerance was applied either side of this figure.

(e) This question was a good discriminator, with better responses paying due attention to the need to 'explain' as well as 'describe' the pattern of rural settlement on the map extract. Many noted that the rural settlements were dispersed and others noted that they occurred on gentle slopes which were easy to build on. The fact that some were found along rivers, which served as a water supply, along roads to serve as access to main towns, and around woodland for fuelwood were often seen. Some suggested that most settlements were just farms or hamlets which were found throughout the map area. However, weaker responses tended to note features such as rivers and roads but did not clearly link them to settlements. There was much reference to linear and nucleated settlements which received no credit, as did comments on both Dunlop and Stewarton and their services, which candidates were specifically asked not to comment upon in the question.

Question 2

(a) (i) The identification of the type of graph, a population pyramid or age/sex pyramid was not especially well known. Too many responses suggested just a bar chart or a population graph.

(ii) and (iii) The correct answers of 3 per cent and 12 per cent proved no problem to well-prepared candidates. The use of a ruler dropped to the X axis would help them confirm the accuracy of their responses. For **part (iii)**, some neglected to add the male and female percentages together and thus their answer of 6 per cent was incorrect.

(iv) The fact that West Africa had more young dependents and fewer old dependents than Western Europe was stated by most candidates. However, the economically active group was often described in terms of West Africa decreasing and Western Europe increasing rather than the direct comparison that Western Europe had more economically active than West Africa. Those who described the shape for each of the three sections of the pyramid in terms of wider, narrower, etc. needed to state how this related to the percentage of the population.

(b) The better responses focused on economic problems and referred to the lack of education for the young dependents or the cost of paying for more schools or more resources such as books, or more teachers. Others suggested that there was a strain on medical services or a need for more maternity care. Some also referred to the cost of increasing food and water supplies. Many candidates failed to identify problems of an economic nature, referring to social problems as an increase in crime, while others lacked the context of the wider society and described economic problems associated with individual families, such as the need to pay more taxes, or there being not enough wage earners. The need for the active population to support the young dependent

population was often mentioned but without specific economic problems. The problem of a lack of jobs needed to be focused on the future rather than the present.

Question 3

(a) (i) Candidates engaged well with this question, with the best responses stating how the features of the shopping centre seen in **Fig. 3.1** were advantageous for those shopping there. Most referred to the variety of shops, the availability of quality branded goods, and the provision of places to eat or take a drink. Others referred to the spacious nature of the place, the escalators (so easy to get from floor to floor), and the fact that it was clean. Some weaker responses seemed to rely on personal experiences of shopping centres they had visited and referred to features which could not be seen or ascertained from the figure, such as better security, easy parking, public toilets, and leisure activities. Others tended to make similar points, particularly relating to the variety of goods such as comparison shops and everything being in one place or shops being near each other.

(ii) Many gained credit for stating that the range of goods was smaller in **Fig. 3.2**, the local neighbourhood clothes shop. However, some neglected to use a comparative since they were asked to compare it with the clothing shop in **Fig. 3.1**. A minority of candidates also referred to the quality of the goods rather than the range. The term 'threshold population' was poorly understood and therefore few stated clearly that it was lower for the local neighbourhood clothes shop. Some candidates seemed to think it was the shop's size and thus capacity to hold customers that was being judged, while others suggested it was the fact that fewer people lived nearby.

(b) This question was generally answered well. Many candidates referred to the shop's proximity to home and therefore lower transport costs in getting there. Others suggested that it helped support the local businesses, ensuring they stayed open and/or that it fostered a sense of community with a familiarity between the shopkeeper and the customer. Many said that the goods would be cheaper, but this is not necessarily true.

Question 4

(a) Most candidates scored the two marks available for this question. The most common error was for **Fig. 4.1** where many candidates did not recognise the barometer and suggested the instrument measured sunshine hours.

(b) This question discriminated well with the full range of marks credited. For many candidates the resource was too complex, despite only having to compare the SSW with the North. The best responses identified that the wind was stronger and more frequent from the SSW and were able to select an appropriate example of data to back up the comparison. In many responses, however, the distinction between wind duration and strength was not clearly expressed and data for per cent and m/s were confused. This was compounded by a general failure to compare whole wind speed bands rather than just the higher end. This would have been acceptable for the highest bands in each of the two directions if the term 'maximum' was used; for example, 'The wind from the SSW reached a maximum of 16 m/s whilst that from the N reached only 8 m/s'. Many quoted the data inaccurately with some giving values that were too high, since they mistakenly aggregated the data, especially for the percentage figures.

(c) This question was answered well since the siting factors for a Stevenson Screen were well known. The descriptions tended to be better than the explanations. The commonest responses suggested it should be away from trees and/or buildings and/or in an open area. In addition, it should be sited on grass and off the ground to minimise ground radiation. In the latter, some unrealistic heights off the ground were sometimes given. Many also stated that it should be in a fenced area to avoid interference from both humans and animals. Weaker responses spent too much time describing what the Stevenson Screen was made of and what it looked like, for instance, 'It is made of wood, painted white with louvres'.

Question 5

(a) This question was answered poorly**.** Many candidates approached a rather complicated line graph by giving a year-by-year account or in 20-year blocks using the dates on the X axis. This was not required and was inappropriate. Instead they should have focused on trends, since the question asked for 'A description of the **pattern** of global deaths from natural hazards'. The best responses noted that there was a general fluctuation during the whole time period, that the number of deaths

was declining over time, and that most years had few deaths. Those who quoted actual years tended to be inaccurate. Credit was given for recognising the highest peak in 1931 and that there were no major peaks from 1966 (1970s) onward. The lowest number of deaths was from 2011/12 to 2019 and therefore was creditworthy. Some candidates quoted the number of deaths on certain dates but the question specifically excluded the use of statistics.

(b) This question discriminated well. For two of the marks available, most were able to describe the areas of the globe with the highest and lowest numbers of deaths from natural hazards. Some added that North America (100–1000 deaths) was also high as was Central Africa (500–1000 deaths). The best responses focused on the whole globe rather than considering one continent at a time and giving the distribution (high, low, etc.) within a continent. The latter led to considerable repetition. Having been invited to use statistics in the question, a number of candidates quoted only single figures, usually the lowest points of the ranges from the key instead of the whole range. This led to some incorrect statements such as 'Europe had no deaths'. Since the question was testing the skill of only using the information provided in the resource, the names of individual countries such as China and Mexico could not be credited. Many did, however, recognise South Asia (instead of India) as having the highest number of deaths (100–10 000).

Question 6

(a) Most candidates answered this correctly with most suggesting a bar graph and some a pie chart.

(b) In **part (i)**, many candidates correctly stated Europe as the continent that has the most countries in the top ten of visitors to the Dominican Republic. However, a large number said North America or the USA which suggests they may have misread the question, mistaking 'most countries' for 'most visitors'. Most candidates stated Asia and Australasia in response to **part (ii)**. However, there were some who incorrectly wrote Africa instead of Asia, and Australia (name not shown on the map) instead of Australasia.

(c) A wide variety of valid points were seen on both the advantages and disadvantages of increasing the number of tourists for the people and the economy of the Dominican Republic. Most candidates were well prepared and remained focused on both people and the economy, and thus only a few responses incorrectly commented on the environmental effects. The main weakness was that some candidates did not respond to the 'increase' in tourists when referring to the economic advantages and therefore suggested that it would bring money into the country rather than a higher amount of income or foreign currency. Some more vague answers referred to infrastructure, crime, and pollution without mentioning the specific types, and the term 'overpopulation' needed to be more precise, for example, linking it to overcrowding of streets or traffic congestion.

GEOGRAPHY

Paper 0460/23
Geographical Skills 23

Key messages

- Candidates should be encouraged to use pencil directly onto the map extract, to mark the position of the zones that they need to consider. This is particularly useful with a cross-section but is also helpful when considering a group of grid squares over a number of subsections, when it is all too easy to go to the question paper and then return to the map in the wrong position.
- Candidates must give attention to detail, particularly when reading graphs (**Question 5(a)**) and completing a key (**Question 6(a)**).

General comments

This paper was comparable with previous years, with a good balance between relatively easier and more challenging sections in the early parts of the paper and questions of more moderate difficulty towards the end. **Question 1** and **Question 3** were the most challenging, particularly **Question 1(b)**, **Question 1(c)(iii)** and **Question 3(b)**. The most challenging subsection appeared to be **Question 2(a)(ii)** but this was within what was otherwise a fairly straightforward question. **Question 4** and **Question 6** proved to be particularly easy, causing little difficulty for most candidates.

Candidates appeared to have plenty of time to complete the paper and few needed to make use of the additional page.

Comments on specific questions

Question 1

(a) The 1:25 000 map was for Kilwinning, Scotland. In the familiar style, the examination opened with **Fig. 1.1** directing candidates to four squares on the map extract, on the western edge of the town of Kilwinning. They were asked to use the map extract to identify various features.

The type of road at **A** was a main road, as given by the map key. The road number was also given on the map, so A738 or just 'A road' were also accepted. Most candidates did use the key and correctly identified **A** as representing a main road. A few thought it was a dual carriageway. Given that these symbols are adjacent in the key, they should have noticed the similarity and returned to the map for clarification.

Feature **B** was given by the symbol W, and the key identified this as a well. Some copied the full line of the key 'Well; spring'. Candidates do need to interpret carefully when the map key has more than one piece of information on a line.

In this respect, feature **C** was more complicated, with three symbols grouped together in the key. Candidates were awarded the mark for either of the park and ride options (seasonal or all year) or for just identifying park and ride. However, those who just copied the line of the key did not score, as their first answer 'parking' was taken.

Contour line **D** was easy to locate, based on grid squares and shape, and the height above sea level was written on the line, so there was no need to deduce from the surrounding contours. Consequently, this was the easiest subsection of the paper, with most candidates having the correct answer of 40 m.

(b) **Part (b)** continued, with **Fig. 1.1** being used to identify the starting point for the distance measurement. Candidates had to measure from the railway station, identified by **E**, to the northern edge of the map, following along the railway line. Although the railway route was not straight, the curves were very gentle, so the measurement itself was not particularly difficult. Consequently, the range of acceptable answers was kept to 3.35–3.45 km. Some of those who missed the mark were just outside this range, but mostly incorrect answers were very much astray due to misunderstanding of the map scale.

The six-figure grid reference for the Kilwinning railway station was 296436. Most had the eastings and the northings the correct way round, but there were some inaccuracies with the third and sixth figure, often giving 7 rather than 6. Candidates should be reminded to measure with a ruler in order to obtain an accurate grid reference.

(c) **Fig. 1.2** showed an incomplete cross-section along northing 455. Before completing it, candidates were asked to identify features **X** and **Y**. To assist them, they had the six-figure grid references of the two end points and also the road less than 4m wide was located on the section line.

Most identified **X** by the green symbols, representing coniferous trees and non-coniferous trees. They could also have interpreted the symbols and written 'woodland' or used the name 'Smithstone Plantation' given further along the feature, though most just used the key and stated the type of trees.

Feature **Y**, being wider than **X**, was slightly easier. Successful candidates had located the quarry.

Incorrect answers for both **X** and **Y** usually selected one of the nearby named locations, such as Auld Clay Road, Bankend or High Smithstone. Part of the difficulty may have been due to the fact that the cross-section line was not along a grid line. Candidates needed to carefully measure the halfway point between the two northings. They should be encouraged to draw the position of the section line on the map, so that they focus specifically on the line and not just the general area surrounding it.

In **part (iii)**, candidates were asked to complete the cross-section. There were two marks available: one for showing the hill, topping between 105 m and 109 m, and the second for intersecting with the axis at the right height. (A range of 91 to 99 m was allowed.) There was no need to construct this accurately, though some candidates had clearly done so. Generally, those who had spotted the shape of the landscape had sufficient accuracy to score the marks. There were many and varied guesses, particularly a constant gradient across to the edge, some of which intersected at 0 m, perhaps interpreting **Fig. 1.2** rather like a graph. **Part (iii)** also had the highest omission rate of any subsection of the paper.

(d) Candidates were then asked to describe the distribution of trees (woodland) on the map extract as a whole. These were rather scattered, but most candidates focused on the largest area at Corsehillmuir Wood Nature Reserve, to the east of the town of Kilwinning. They then needed to look in a little more detail to gain the other marks, but most scored at least one more. The woodland areas were along the road/railway, along the river and at the edge of the built-up area. They could be found in clusters, or strips, in various areas across the north and also to the south-west. Some of the disused quarries also contained woodland. A few went into detail about the types of trees, which was not relevant.

(e) To complete the map question, candidates were asked to describe the site and functions of the settlement of Kilwinning. Having just written about the distribution of the trees across the whole map area, some candidates went on to describe settlement across the entire map, rather than focussing on the actual settlement named Kilwinning. This approach usually enabled them to score some marks but not in the most efficient way.

Kilwinning was sited on the lower gently sloping land adjacent to the river. Thus, it was a bridging point for crossing the river and could also be considered to be located in a defensive position. With several main roads meeting at the town as well as the two branches of the railway line, it could be seen to be a route centre. This gave it a transport function, particularly with the presence of the park and ride at the railway station. Other functions that could be deduced from various clues on the map were residential, educational, industrial, mining (formerly), recreation and tourism with the cultural/religious/historical features. A trading function as a market town was also accepted.

Few scored all seven marks, but most gained at least two or three. Weaker responses tended to repeat themselves across the two halves of the answer.

Question 2

(a) **Fig. 2.1** was a graph showing population structure in inner and outer London, and an additional diagram showed how these two zones related to each other. Candidates were asked what proportion of the population was aged 1–4 years in inner London. This was straightforward and easy to read from the graph, and most candidates had the correct answer of 5 per cent.

The population data was presented as a bar chart in **Fig. 2.1** and candidates were then asked to suggest another type of graph that could be used to show the information. This kind of data would often be presented as a population pyramid, but relatively few thought of this. Histogram and compound bar were alternative answers, but many opted for either line graph or pie chart and probably had not stopped to consider how to make this work in reality. The weakest responses just named the type of graph already used in **Fig. 2.1**. This appeared to be the most challenging subsection on the paper.

Candidates were then asked to suggest why there were a large number of people aged 30–34 years in inner London, the tallest bar on the chart. Many suggested that they were working there or were in the area to find jobs. Some did not take their answer quite far enough, stating that they were economically active or had migrated to the area without linking it to work or jobs.

(b) **Fig. 2.1** was subdivided into young dependents, economically active and elderly dependents, and candidates were asked to take each in turn and compare the differences in structure between inner and outer London. Most scored at least two marks, for the young and elderly dependents, both of which were greater in outer London. From this it could be deduced that inner London had a higher proportion of economically active overall, as was correctly stated by some. However, the details of the pattern depended on age group, with the younger economically active (up to age 39) being greater in inner London and the older economically active (after age 45) being greater in outer London. With the 40–44 group being the same in both zones, candidates needed to look quite carefully at the data, and some made incorrect statements. A few described the pattern of age groups in each zone without comparison.

(c) London's aging population has the potential to cause many economic problems, with money being needed for pensions, healthcare and care homes. Fewer workers result in lower tax revenue or high tax rates, and if workers are in short supply, then they can demand higher wages. Most candidates scored at least one mark, but some were sidetracked away from the economy and into population issues.

Question 3

(a) **Fig. 3.1** was a photograph of a meander. Features **X**, **Y** and **Z** were labelled, and candidates had to complete the chart to match the letters with the name of the feature. **Z** was the river cliff; **Y** was the slip-off slope; **X** was the floodplain. Candidates tended to either get this all correct or all wrong: they rarely had just one correct. The most common error was to assume that the lower ground at **Y** was the floodplain, presumably since it would flood easily. They then made **Z** the slip-off slope, perhaps because on a steep slope material would slip, leaving **X** to be the river cliff, labelled from the cliff top, even though it was rather far from the edge. Candidates need to learn not only the names of these features, but where they are located in the landscape of a river.

(b) Candidates were then given a large writing space in which to suggest how and why the meander would change over time. Some gave a very complete answer, taking it through all the stages, and easily achieved their five marks. Those who scored three or four usually stated that the meander would grow bigger or curve more, but then tended to either focus on the processes or on the changes to the meander. So, they either wrote about erosion on the outer bend, due to the fast-flowing water, with deposition on the inner bend in the slower flow, or they described the narrowing meander neck, enabling the river to cut through during high flow, forming an oxbow lake. Most scored at least two points here.

Question 4

(a) **Part (a)** was relatively straightforward, and candidates scored well. **Fig. 4.1** showed the main causes of global deforestation. Most candidates correctly identified the region with the largest area of deforestation as South and Central America. The few that opted for Europe perhaps did not realise that everything in the key would cause deforestation, and so they picked out where logging for timber was predominant.

The main cause of deforestation in Russia, China and South Asia was wildfire. This covered more than half of the ring on **Fig. 4.1**, so was easy to identify and most were able to do this.

A little more scrutiny was necessary to identify the cause of deforestation affecting all regions. The answer was logging for timber, and again most had deduced this correctly.

(b) The question then moved to another photograph, **Fig. 4.2**, a partly deforested landscape in Brazil. Candidates were asked to identify the type of farming shown. Acceptable answers here included pastoral, livestock, animal, cattle, beef, extensive or commercial. This gave plenty of scope to score the mark; however, many were distracted by the remaining trees, so opted for mixed farming. This was not accepted on its own but did not prevent further description of the animals, allowing the mark to be credited. The other common error here was to opt for subsistence farming.

Candidates then had to describe the vegetation shown in the photograph and many easily gained four marks. They typically wrote about the scattered tall trees, with their straight, thin, or branchless trunks, leading to branches with leaves at the top. Many also noted the leafless or even dead trees and the severed trunks. At the lower level there were bushes, shrubs or ferns and yellow, brown or dried grass. A few tried to apply a generic tropical rainforest layers description, and some wrote about the farming as they had not read the question properly, but most answered well.

Question 5

(a) **Fig. 5.1** was a graph of the number of tractors per 100 000 km^2 of agricultural land in Bhutan, over the period from 1988 to 2000. Candidates were asked to describe the changes shown and use statistics to support their answer. The main changing points were 1995 and 1999, giving three sections to the graph, each of which could be described with supporting data for two marks. Overall change across the whole period could also be described, giving a variety of ways to attain the four marks available. Many noted the overall increase but were a little imprecise when it came to the detailed analysis or the supporting data. From 1988 to 1995, there was a gradual increase, which levelled off from 1995 to 1999, before a sharp increase in 1999 to 2000. This last increase was usually accompanied by accurate statistics (from 7.5 to 11, or an increase of 3.5 tractors per 100 000 km^2), but for other parts of the graph candidates were imprecise, such as 'about 2 in 1988'. Data without per 100 000 km^2 was acceptable as long as per 100 000 km^2 appeared somewhere in their answer. A few did not understand the units and thought that 100 000 was the number of tractors.

(b) **Fig. 5.2** showed a tractor in Bhutan, but the question in **part (b)** was more general, inviting candidates to suggest two advantages and two disadvantages of increasing the number of tractors in countries such as Bhutan. Most found the disadvantages easier, and they typically wrote about increased air or noise pollution and greater unemployment. Others noted the cost, both initially to purchase and then to maintain and run the tractor, while others were dubious about reliability. On the plus side, many realised that farm work could be done more quickly and efficiently, with fewer physical demands on the workers, yet more output, with better productivity increasing food supply. Some pointed out that children would not be needed on the farm, so could go to school and others that the scale of the farming operation could be increased. Most candidates scored at least two on this question.

Question 6

(a) **Fig. 6.1**, showing the locations of the headquarters of the world's largest transnational corporations, was incomplete and candidates were given the data to complete this. A mark was given for plotting the dividing line at 94 per cent, so that the order of the regions matched the sequence of the key. The second mark was for correctly shading the two zones. This should be an easy task, but candidates need to give attention to detail to ensure that their shading matches the

given key. Most candidates could do the task but many lost marks through inaccuracy of either the plot or the shading.

(b) **Fig. 6.2** gave information about the ten most wealthy transnational corporations in 2006 and ten years later, in 2016. Candidates had to use the information to complete the given paragraph. In 2006, half of the wealthiest TNCs were in the energy sector, whereas in 2016 most were in the technology sector. Only three TNCs were in the top ten in both years. The overall wealth of TNCs had increased in 2016 and all earned more than $USD 200 billion. Healthcare was the new sector that had joined the top ten in 2016. Candidates needed correct answers in at least five of the spaces to score their three marks, but most were able to do this. A common error was to try to classify the sectors as primary, secondary, tertiary or quaternary, rather than using the sector types given in the key in **Fig. 6.2**.

(c) Finally, a fourth photograph, **Fig. 6.3**, showed a high-tech industry and candidates were asked to describe the features of that industry. Again, there was plenty of scope here, with many noting that the car was being assembled by robots in a fully mechanised computer-controlled process. Many noted the modern look, with information on screens in a brightly lit room. Some mentioned that there were few workers, though some expressed this as less workers, which was not valid as there was nothing with which to make comparison. However, with so many other valid points available, most were still able to score their three marks.

GEOGRAPHY

Paper 0460/03
Coursework

Key messages

- A clear understanding of the *Route to Geographical Enquiry* was demonstrated by most candidates. This resulted in well organised studies containing the five sections outlined in the syllabus often with a table of contents. The latter did not always match the page numbering. Some centres' coursework was imbalanced, typically with a long introduction and *Observation and Data Collection* section at the expense of a relatively short *Analysis*.
- Most candidates displayed a very good background knowledge of their chosen topic, although this was not always well linked to the stated aims of each study. Geographical models outlined in the introduction were often given no or only cursory attention in the analysis and conclusion. Some geographical theory should appear in all introductions and often forms an important part of the justification of the hypotheses.
- The most successful conclusions were arrived at as a result of clear hypotheses laid out at the beginning of the enquiries. Two or three hypotheses are enough to ensure a sufficient depth of reasoning in the analysis. Too many hypotheses and data collected on too many parameters invariably leads to a simplistic analysis or over-lengthy enquiries which lose focus.
- It is important that enough primary data on any one parameter is collected to allow candidates to exhibit a depth of understanding in their analysis. Not all data collection exercises produced enough data to allow the identification of clear trends and anomalies, as well as the opportunity to perform statistical analysis.
- Data collection methods were well described and understood. Sampling procedures, however, were poorly described and understood, and there was limited justification (if any) for the selection of data collection sites.
- All relevant primary numerical data that is used in the study should be included in tabular form. This was absent in some studies, despite the description of data collection methods appearing in tables.
- An impressive range of data presentation methods was utilised with many demonstrating the complexity required to score well. However, a large number were rendered ineffective by the absence of correctly labelled axes (to include units). Line graphs were often used inappropriately.
- All maps should have a scale and orientation, and those originally from secondary sources must be clearly utilised.
- The inclusion of photographs considerably enhanced many enquiries, but to be worthy of credit they must be well annotated as well as having a title. They should also be individual and not appear in other studies.
- The best responses gave well-reasoned explanations to support their findings; however, many reasons given were far too speculative, and were not backed up by the findings or theory.
- Most studies clearly confirmed or rejected their hypotheses in the concluding section. The best responses backed this up with key numerical data or reference to graphs and valid explanation.
- Evaluations were variable in quality, although most demonstrated that they understood some limitations of the study undertaken. However, more attention could be paid to what went well and why. Feasible suggestions for improvement or extension should the study be undertaken again often lacked detail.
- References to shortcomings in the methodology should only be written in the evaluation and not in the data collection section since this is a waste of wordage.
- Again, most centres should be congratulated for making sure their candidates adhered to the word limit of 2000 words. Where this is an issue, it is expected that a word count is declared to get the candidates to concentrate on this issue. The moderators pointed out that the best studies were those that were concise. Text which is placed in tables counts towards the word limit.
- Markers should be complimented for their conscientious and copious comments made on scripts. New centres in particular should note that they are expected to justify how the marks were awarded. Phrases from the *Generic Mark Scheme for Coursework Assessment* which was used by every centre can be utilised for this.

- Overall, most of the marking done by centres was accurate and there was agreement over the order of candidates. Where there were disparities, it was usually due to the undermarking of *Organisation and Presentation* and overmarking of the *Analysis* and *Conclusio*n sections. The changes, if any, frequently occurred at the top and lower end of the mark distribution. The exceptions were where candidates failed to collect any data but used only texts from the internet, and these were drastically overmarked.

General comments

This report refers to the performance of centres in the November examinations. However, the comments made here are equally applicable for centres that make their entries for the first time in June and November 2024. Please note that the key messages and comments on specific assessment criteria below are derived from the analysis of centres which entered coursework for either of the June and November 2023 examinations.

The original entry for the November 2023 session was a little higher compared with the IGCSE Geography Coursework Paper in November 2022. This reflected the fact that most schools have returned to a relatively normal routine since the COVID-19 pandemic. There were one or two centres that withdrew at the last minute.

The range of topics undertaken represents a broader range than the November session in 2022. Some centres now feel able to take their candidates for fieldwork further afield. From the table below it can be seen that coursework submissions on human geography topics, while similar in number, are more varied than those on physical geography.

	Topic	Number of Centres
Human	environmental risks of economic development	1
	industry	1
	population and migration	1
	settlement and service provision	1
	tourism	2
	urban settlement	1
Physical	coasts/sand dunes	4
	rivers	1
Mixed topics*		2

*includes centres where candidates have chosen individual topics to study.

Whilst some used the nearest urban area, such as the study of tourism in Chinatown, Singapore, others went much further afield such as from Gaborone 178 km across country to the Jwaneng Diamond Mine, or from Lima five hours south to the sand dunes surrounding the desert oasis of Huacachina.

It is stressed that this report focuses on points where the moderation process could have been a little smoother or where candidates could improve their coursework to access 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. There is training available online for teachers who are new to the coursework option. 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. It is also strongly urged that centres read and take note of this report's content together with the *Moderator's Comments on School-Based*

Assessment of Coursework which each centre receives. Together with this report, these are the main vehicles for feedback to centres.

It is expected that primary data was collected as part of a group exercise and was then collated by a teacher when candidates returned to school. The complete data set(s) are then made available to all candidates for each to work on their own individual hypotheses. However, there was an increase in candidates collecting their data either individually or in small groups. In many cases this resulted in less data being collected, which was not sufficient for an in-depth analysis. For safety reasons, Cambridge International would **not** endorse candidates being allowed to collect data on their own, 'in the field'. Should a candidate need to add extra data for their own study to that which has already been collected as a group, it is expected that they are accompanied by an adult, especially when administering questionnaires in urban or rural areas, or collecting data on a river or along a beach.

If a centre is unable to send students out in the field to collect primary data, then the option introduced during the COVID-19 Pandemic of using quantitative secondary data, for instance from the internet, still exists, although the centre should inform Cambridge International if this is the case. An example would be weather statistics available from local weather station websites, but the source must be clearly stated. However, there were one or two centres which submitted essays that were an amalgam of texts written on geographical topics and sourced from the internet. These cases clearly did not follow *The Route to Geographical Enquiry* and possessed no numerical data which could be presented graphically and analysed. These were subject to a severe negative adjustment in the marks submitted.

While the data collection must be a collaborative exercise, individuality is key to achieving the highest marks. Centres should avoid candidates using the same computer-generated graphs in every study. Individuality can be enhanced by candidates researching their own background information and attempting at least one hypothesis which is not attempted by other candidates. In addition, candidates should be encouraged to take and use their own photographs as well as graphs, maps and field sketches.

Comments on specific assessment criteria

Since each centre will receive a separate coursework report on their own submission, which will refer to both strengths and weaknesses, it is points that are common to several centres which are reported below and are based on each of the assessment criteria in turn. Many points are the same as in past exam sessions and therefore are repeated. It is felt that this is of particular benefit to new centres, although some are still relevant for the more established centres.

The criterion of *Knowledge with Understanding* tended to be assessed accurately. Where disparities occurred, it was often because the marker seemed to only take the candidate's introduction into account. This is largely the knowledge element, whilst the level of understanding can be demonstrated throughout the study. For instance, a judgement can be made on how well the theory has been applied such as in the provision of reasoned explanation in the *Analysis* or how perceptive the candidate has been in stating the limitations of the study in the evaluation. Knowledge can also be introduced at a relatively late stage such as to explain trends or anomalies in the data. This can be highlighted by markers in their comments made on the scripts.

Most enquiries were well organised with clearly stated aims and hypotheses and positive use of geographical terminology. These were often accompanied by the expected outcomes which were often related to theory. Nevertheless, there is still work to do to ensure candidates' introductions are not too long compared with the rest of the study. Many followed some initial aims with a prolonged background information section. There are still some candidates who write all they know on a topic. Extended paragraphs on the history of the locality are often irrelevant. Glossaries of geographical terms should be avoided since many of the terms are not mentioned again. Too many candidates place the theory before their hypotheses, rather than the other way round, which encourages greater selectivity. On the other hand, some candidates tend to be far too brief in their use of theory; this was common using Bradshaw's Model or urban land-use models, where once having scanned the diagram(s), just a few simple sentences (if any) to explain the relevance to the hypotheses were written. It should be noted that in the better studies these theories proved a focal point throughout, for instance for those studying psammoseres, where comparisons are made to the data collected.

The wording of the hypotheses is important. Nearly all those that were stated were plausible. The most successful formula seemed once again to encourage candidates to use two core hypotheses and a third chosen by the candidate him/herself. This resulted in a more focused study with greater evidence of

individual work. The use of four or five hypotheses or a generic guiding question was usually associated with a superficial analysis. Furthermore, it is questionable whether some candidates understood the nature of a hypothesis. Some expressed their hypotheses as questions rather than statements and this seemed to result in a failure to fully explore the findings, with a brief 'yes' or 'no' in the concluding section.

It is recommended that more attention is given to the detail shown on location maps placed in the introduction. To be effective, a scale and orientation is essential and just including 'not to scale' is not helpful. It is also expected that any map, from whatever source, is utilised by the candidate. This is usually achieved by locating the sites of data collection with an appropriate key. The better examples are usually well annotated and possess clarity in order that relevant detail is easily accessed. A minimum of half an A4 sheet seems to lead to the best outcome. Some hand-drawn maps can also be very effective. However, there are still candidates who include a plethora of maps at different scales (e.g. world, regional and local) with little or no customisation to the area of study. More attention should also be paid to the quality of scanning since, in many cases, much of the detail such as the scale is illegible. This seems to be most common when Google Maps are downloaded.

The criterion *Observation and Collection of Data* was accurately assessed by the markers and very few adjustments had to be made other than where no primary data was collected at all. Not all but most data collection strategies were well organised and resulted in enough data to ensure the opportunity for sufficient depth of understanding and detail to be demonstrated in the analysis. This was particularly the case for those sampling sand and pebble beaches and sand dunes. In the latter case, the groups of students combined successfully to produce data over a very long transect. Some centres managed to collect questionnaires from at least the recommended 50 respondents. Those that did not were often single groups of three or four students working on their own and not part of a larger class where data was pooled. In any event, the data derived from only five to eight questionnaires is usually inadequate. Similarly, bi-polar analyses assessing the environmental quality need more than two or three sites within the urban area from which observations are made. For river studies, 10 locations would be ideal, although may not always be achievable due to constraints of candidate safety or of time. In any event, in river studies there is no shortage of the different parameters on which data can be collected, allowing a range of hypotheses in order that each study is more individual. Where the number of sites is under six, a centre might consider measuring each site at three different cross sections, each a minimum of 100 m apart.

Again, a common weakness was the failure to discuss the sampling strategy. Even if respondents to a questionnaire were accessed on an opportunity basis, then it needs to be stated and justified. It appears that methods of sampling are poorly understood and any explanation is cursory. Even if sites for a dune or river study, for instance, are chosen by the teacher, the candidate needs to justify why they were chosen. Where the sampling sites deviate from a transect line, it should be stated why.

The time given over to data collection is another issue, especially when the time available on the school timetable is limited. A surprising amount of data can be collected in a relatively short space of time when a large number of pupils are divided into small groups to cover a large area, each coordinated to do similar activities such as a pedestrian or traffic count or covering a whole beach using a number of beach profiles. On return to school, the data is then coordinated centrally and then shared. Even so, centres that allocated more than half a day for data collection almost inevitably achieved much better results than those which attempted to collect data in one or two hours. The secret, of course, is in the time spent planning beforehand, and then the preparation of the participants, even to the extent of undertaking a pilot study, which seems a rare event.

Many candidates write up their data collection methodology in tabular form. These are usually well set out, and positively, even include a link to the hypothesis to which the technique being described relates. However, many include some evaluation of each data collection technique. Since all wordage in such tables counts towards the overall word count, this is best left for the concluding section of each study.

The use of secondary data can play a valuable role as background information in the introduction or particularly for comparison purposes. For instance, there is the opportunity to compare data collected at the present with that collected by students from the same centre in the past on the same topic. Cambridge International has advised that numerical data could be utilised from secondary sources such as weather stations or censuses where a centre is, for any reason, unable to carry out their primary data collection fieldwork. It is worth stating again that the use of secondary data does not extend to synthesising written information culled from the internet, teacher's notes or textbooks and putting it together in essay format. This would not gain any credit for *Organisation and Collection of Data* or *Data Presentation or Analysis*.

Finally, the best studies placed all their relevant data in tables and usually integrated it with the methods of presentation or analysis. Since it is likely that parts of the data will be referred to in the text of the study, candidates should avoid placing it in an appendix. However, there were some studies where tables of data were completely absent and it is hoped that all centres will address this weakness in the future.

Organisation and Presentation remains the criterion where, on average, candidates scored the most marks. However, it was also the criterion which resulted in the greatest disparity between markers and moderators, especially at the lower end of the mark distribution. Some studies which scored higher marks were overmarked due to the lack of complex methods of data presentation and/or the absence of location maps which, if present, had either not been utilised by the candidate or did not possess both scale and orientation. Meanwhile, some lower scoring studies which used at least three different simple techniques or included one complex technique tended to be undermarked. These techniques must be effective in portraying the data; for instance, line graphs used for discrete rather than continuous data meant they were inappropriate. It should also be noted that different sorts of bar graphs only count as one technique. Furthermore, the same data presented in a number of different ways only count once. Since the emphasis must be on positive marking when assessing the data presentation, only the three most complex and effective graphs should be taken into account by markers. There is no place in the *Generic Mark Scheme for Coursework Assessment* to deduct marks for other ineffective or inappropriate graphs.

Most candidates followed the route to geographical enquiry and therefore produced studies with an appropriate structure. Thus, little comment is required on the *Organisation*. Most candidates are integrating their graphs and diagrams with the text of the *Analysis*. This helps to ensure students analyse the data shown by each graph/diagram/map in turn, making sure that none are redundant. Candidates should be discouraged from grouping all their graphs together in one section, whether it is before the *Analysis* or in an appendix at the end. This also includes statistical tests. It is good practice to provide a table of contents with page numbers at the beginning of the study. However, with amendments being made the original page numbers are not always accurate. Candidates should check this as one of the last jobs before submission of their studies. More candidates are including risk assessments which demonstrates their organisation.

A large range of techniques was utilised by candidates to represent the data. There is clear encouragement in some centres to get their candidates to produce more complexity and this was largely successful. Where this was not the case, there is still a reliance on basic bar charts, line graphs, pictographs and pie charts. These techniques can often be located on maps to make the technique more complex. Scatter graphs with appropriate lines of best fit, divided and stacked bar graphs and radar graphs are other techniques used by candidates which have the appropriate level of complexity. Both cross sections produced in river studies and beach profiles are considered a higher-level skill, although these must be created carefully to the same scale in order to facilitate ready comparison. There was a virtual absence of field sketches which, when clearly linked to the field study area with appropriate annotations, can considerably enhance a candidate's study. A few candidates used statistical techniques such as Spearman's Rank Correlation. These can also count as a complex presentation technique if the candidates demonstrate the complete working themselves and do not just rely on computer generated results.

Unfortunately, many bar, line and scatter graphs were rendered ineffective by the lack of or incomplete labelling, particularly on the Y axis. Such labelling should include the name of the parameter along with the units of measurement. On some occasions, titles were also missing. Since the majority of graphs are produced by using computer programmes, all centres should advise their candidates that, having input the data, they should inspect the results carefully and make any necessary changes. Furthermore, an increasing trend is the incorrect use of line graphs for non-continuous data. Their best use is to track data over a short or long period of time.

Some centres' candidates produced some very well annotated photographs, graphs and maps. Anomalies on graphs, for instance, were highlighted by a circle leading to an arrow and relevant comment. However, this was not the case in many studies where photographs had no annotations and were not referred to in the text. Many others had just a title and/or simple labels which would not count as complex. These served little purpose. Centres should make sure that their candidates know exactly what is expected by annotations; a paragraph written underneath the photograph, for instance, would not count. Three appropriate annotations would be expected on any photograph for it to be complex.

It is best for the original hand-drawn graphs, field sketches and diagrams to be included in any study rather than being scanned in, albeit at an appropriate place. These become more difficult to read, especially when they are scanned in monochrome. Candidates are reminded that each graph should be drawn by themselves and not by one person in their original group, with the rest scanning it. Furthermore, since it is expected that individual initiative is demonstrated in the use of presentation techniques to attain the highest marks, the

same range of computer-generated graphs appearing in every study that a centre's candidates submit should be avoided. Where this occurs, candidates must make every effort to individualise the graph, for instance by using annotations to highlight certain features.

The *Analysis* continues to be overmarked by a number of centres, especially at the top end of the mark distribution. The requirement for reasoned explanations at Level 3 is still being overlooked by markers when reasons given are very short and tenuous. Some of the marker comments on the scripts revealed that the higher marks were being given for explanations which were far from being developed. The *Analysis* section is where candidates can really demonstrate their level of understanding. However, 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. Here, the onus is on the centre to make sure their candidates have enough data at their disposal to achieve their potential.

This was the weakest criterion for many candidates, in particular the level of explanation. Most analyses consisted of description derived from graphs. There was a clear effort to use all the graphs presented and to make some interpretation of the trends or patterns identified. Few responses remained at Level 1, but most were marooned in Level 2 or at the bottom of Level 3 due to a lack of viable or detailed explanations. There were some thorough descriptions with good use of data as support and the more able candidates used one or more of geographical theory, secondary data, or personal observation to support their explanations. Only a few candidates clearly identified anomalies from graphs, using numerical values to show why they were anomalies, and explained them with reasons that were creditable. In general, much of the explanation was speculative with no firm foundation. Some candidates identified anomalies but attributed them to student errors which were not substantiated. Phrases such as 'The reason might be/could be/may have been…' were too common, and further backed the notion of being unreliable.

There was some valid but limited use of statistical techniques, principally Spearman's Rank Correlation. Although scatter graphs with best fit lines were often used as a pre-cursor to the testing, many candidates did not really explore the implications of what their statistical work indicated or display an understanding of the technique they had used. The correlation coefficient value itself was often poorly interpreted, especially when produced by the computer, and no workings were shown. This lack of understanding also extended to tests for the level of significance.

The *Conclusion and Evaluation* was marked accurately apart from the highest scoring studies. Here, too much credit was given for accounts which lacked key data. This corresponds to the Level 3 criterion in the *Generic Mark Scheme for Coursework Assessment* which states that conclusions must be 'clearly related to evidence collected'. The key data should be either examples of numerical data or stated characteristics shown on graphs, maps and tables which are clearly referenced, for example, 'On Fig. 3 it can be seen that...'. Many responses which were given high Level 3 marks lacked the expected depth of discussion and explanation.

Most candidates summarised their findings well, although many were rather brief. All the hypotheses tended to be either confirmed or rejected. The best enquiries quoted key data, or referred to figures (graphs, maps and statistical tests) used earlier in the study, as well as providing some explanations. Unfortunately, many responses lacked the evidence to support their assertions, whether qualitative or quantitative, and explanation was rather superficial. Theory quoted in their introduction tended to go unmentioned. Most common was the lack of key data, which limited progression to the higher Level 3 marks.

An evaluation section is expected as part of the conclusion. Markers are reminded that they should take into account comments made in the methodology section, which usually refer to the effectiveness of the equipment used. They should, however, be wary of any repetition of points made in the conclusion. Candidates tended to make some valid criticism of their data collection strategies and many came up with one or more realistic improvements, with better candidates stating the implications of their suggestions. Once again, sampling procedures received very little attention. In addition, there were many generic improvements suggested which needed some development, e.g. 'We should have collected more questionnaires' or 'We should have sampled more sites'. Most of the evaluation is reserved for negative comments, but there should still be some comment on what went well and why it was effective. Weaker responses seemed more likely to make positive comments but these were rather superficial, for example, 'The fieldwork went very well' with 'very good results'. The evaluation remains a good gauge of a candidate's level of understanding of the topic undertaken, with better responses making some perceptive comments on how the study could be extended. It also gives an insight into whether the candidates enjoyed the fieldwork experience, which most seem to have done.

Administration

Once again centres must be praised for the hard work of their markers and their accuracy in utilising the *Generic Mark Scheme for Coursework Assessment*. In nearly all centres it was applied consistently with the order of candidates remaining unchanged. This made applying adjustments relatively straightforward. For those that were adjusted, this was not always across the whole mark distribution. There seemed to be a pattern of negative adjustments at the top end and more positive ones at the lower end. Those centres which had a large negative 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.

Moderators also appreciated the conscientious approach of most markers in adding comments to their candidates' scripts to justify the marks awarded, as well as those who added a cover sheet with some overall comments. These generally used the wording from the *Generic Mark Scheme for Coursework Assessment* and facilitated the smooth running of the moderation process. On the very odd occasion, it highlighted when a marker had misinterpreted the mark scheme. If your centre has not done so, it would be very much appreciated if markers would make these comments (in pencil) on the scripts for your next submission.

Please note that Cambridge International accepts only one piece of coursework for each candidate. Where two different fieldwork exercises have been carried out, it is up to the centre to see that only the one attaining the highest marks according to the *Generic Mark Scheme for Coursework Assessment* is sent. The centre must also ensure that coursework based on different topics are of equal value in giving the opportunity for candidates to achieve their potential.

Please make sure you check the latest documentation from Cambridge International to ascertain the exact number of scripts that should comprise your centre's sample. For centres outside of the UK, at present this is as follows:

0–10 candidates – all scripts
11–50 candidates – 10 scripts
51–100 candidates – 15 scripts
100–200 candidates – 20 scripts

Almost all centres sent their coursework sample submissions to Cambridge International on time, before the 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 ensure that an *Individual Candidate Record Card* is attached to the front of each script and not sent in the overall package in one pile. In addition, please make sure 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).

Please continue to double-check the paperwork to make sure there are no mathematical errors. Very few errors were detected on this occasion. However, it is worth restating the following points.

Errors usually take 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 MS1s.
- Transcription errors from the *Coursework Assessment Summary Forms* to the MS1 forms. Occasionally, this may occur where an internal moderation has taken place, and the candidate's original marks have been entered instead of the changed mark.

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

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 total out of 60. 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 the remainder of the markers, and an internal moderation is the best way to resolve this problem. Please note that it is marks derived from the internal moderation that should be entered on the MS1 or the *Internally Assessed Marks Report*.

GEOGRAPHY

Paper 0460/41
Alternative to Coursework 41

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 or make judgements, use terms such as *higher, lower*, rather than just listing comparative statistics. The use of 'only' with statistics is not accepted as a comparative statement.
- 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 Fig. 1.6 and Table 1.1.*
- Attempt all completion tasks on graphs, tables, or diagrams – not all the answers are on lines and in writing. Many candidates miss out on relatively easy marks by not attempting these types of questions.
- Consider 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 as this wastes time.
- If you have to write more than the lines allow, 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. Use a ruler to draw lines. Always shade bar graphs and pie charts accurately. Make sure the shading matches that shown in the key and the segments are drawn in the same order as the key.
- When you think you have finished, check that you have not missed out a question. Some questions may be hard to spot 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 54 out of 60 which is similar to previous years. Weaker candidates scored on the practical questions, such as drawing and interpreting graphs and tables, and candidates of higher ability scored well on the more challenging sections requiring explanation and judgement, especially regarding hypotheses. 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 out sections, although some candidates omit graph completion questions which are seen as being 'easier' to answer. This is an on-going problem from year to year, despite it being highlighted in each report. 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. However, a significant number of candidates did not attempt later questions.

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. Questions where candidates did not score well often related to them not carefully reading the question, for example, **Question 2(d)(ii)** where some candidates did not use the evidence in the photographs to describe how to take measurements. As in some previous papers **Questions 2(c)(i)** and **2(c)(ii)** required candidates to consider suitable methodology for fieldwork tasks. This type of question or a similar question suggesting improvements in methodology are often included on this paper and is an area which centres should practise with candidates. However, it is not good practice to develop a series of generic improvements which may apply to all fieldwork, as such suggestions tend to be vague and not worthy of credit.

Centres should realise that, although this is an Alternative to Coursework examination, candidates will still be expected to show that they know how fieldwork equipment is used and appropriate fieldwork techniques, even if they have only limited opportunity for fieldwork within the centre. For example, **Questions 1(d)**, **2(d)(i)**, and **2(d)(ii)** focussed on specific equipment and techniques commonly used in fieldwork. Centres are encouraged to carry out basic fieldwork with their 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 the maximum three marks. The most common method was to identify the months with the highest and lowest visitor numbers, and then support these statements with statistics for the two months. Other candidates identified changes between two months which also gained credit. Weaker responses described the changes month by month rather than giving a more considered description of the variation. Candidates who merely gave statistics (sometimes from all months) did not gain credit because they did not describe the variation in monthly totals.

(ii) Weaker candidates found this question difficult. They gave vague answers with unqualified references to weather and climate, seasons and holidays. Candidates needed to be more specific in their response as stronger candidates were. They gained credit for suggesting holiday periods or school holidays when visitors would come to Singapore, or specific attractions of the weather such as warmer or drier. Some candidates also referred to the varying costs of flights or accommodation and special events or festive periods which might increase visitor numbers.

(b) (i) Many candidates did not select the correct option ‘look at the Singapore Tourism Board website’. The statement ‘ask owners of shops, hotels and tourist attractions’ was the most popular distractor. Candidates did not look at Fig. 1.2 which they were referred to in the question. This shows data about tourist earnings in the country which could not be obtained from individuals.

(ii) Almost all candidates identified ‘food and drink’ as the smallest sector of the pie graph.

(iii) Most candidates read the correct percentage from the pie graph. Some candidates did not gain credit because their answer was slightly outside the accepted range of percentages.

(c) Most candidates understood ‘distribution’. Many answers recognised and identified the cluster of attraction in the south of the island. Answers were more varied in trying to describe the distribution of outlying attractions. Weaker responses were too imprecise to gain credit, e.g. they wrote about attractions being ‘near water’ or ‘near the coast’ or ‘others are in the centre’.

(d) Many candidates identified what was wrong with the description, that it described systematic not random sampling. However, many candidates had difficulty in describing random sampling. Better responses described the method by using terms such as ‘ask any person’ or ‘there is no order’ but weaker responses just described the method as ‘ask random people’ which is not creditable. Only the strongest candidates developed their description to gain an extra mark by reference to how a random sampling method could be created, such as using a random number generator or picking numbers out of a hat.

(e) (i) 30 per cent of candidates did not answer the question, despite the instruction being in bold in the question paper. Of the candidates who did attempt the question most correctly drew an arrow which came from Asia. The reason some candidates did not gain credit was because the width of their arrow was too narrow or more often too wide and did not match the width of the arrow in the key. Some candidates wrote '60' on the map rather than drawing an arrow.

(ii) Good answers gave correct reasons such as the arrows show direction of movement or where tourists came from. Another good response was that the width of the arrow shows the number of tourists. Weaker responses were vague e.g. about the method being easy to understand or was visual, but these ideas could apply to any map or graph.

(iii) Many candidates correctly identified that the hypothesis was false. They also supported their decision with a statement about more tourists coming from Asia and statistics which compared the numbers coming from Asia and Europe. Acceptable statistics were the specific numbers shown in Table 1.1 or the ranges shown in the key to Fig. 1.6. Some candidates thought that the hypothesis was true, presumably because they did not plot the arrow showing tourists from Asia on Fig. 1.6, and so it appeared that Europe was the largest source of tourists.

(f) (i) Most candidates inserted the correct statistics into Table 1.3. Weaker responses made the error of not applying the formula given in the question and so gave incorrect answers of 10 and 8.

(ii) 7 per cent of candidates did not attempt to draw the bars. Other candidates usually scored marks depending on their accuracy. Candidates drew bars outside the range of tolerance more through carelessness than error in reading the scale.

(iii) The question discriminated well between candidates. Most correctly stated that the hypothesis was true. Good candidates supported their conclusion by either identifying the most popular attractions for each age group, which were all different, or comparing how individual attractions varied in popularity between different age groups. The best answers then used accurate data to support their statements. Some candidates did not score the data mark because they incorrectly thought the score given in Table 1.4 was the number of people, which was incorrect. Weaker responses gave statistics which were not comparable and did not support any statement. Weak answers also failed to focus on the specific age groups but vaguely referred to young or old people. Another characteristic of weak answers was to group together attractions into vague groups such as gardens or shops. Accuracy and precision were needed to score full marks on this question.

(g) The question allowed plenty of scope for differentiation between candidates. Good candidates usually scored 3 or 4 marks by identifying different impacts of tourism, while weaker responses usually scored 1 or 2 marks. The positive impacts most often suggested referred to jobs, income into the area, shared culture, and being able to improve local services. The negative impacts most often suggested referred to traffic congestion, disagreements between locals and visitors, increase in prices, and various impacts on the natural environment. Weaker responses were characterised by vague ideas about pollution, which was not specified, areas being crowded, and tourism damaging the environment.

Question 2

(a) The question discriminated well with responses varying from being all correct to being all incorrect. Where candidates only identified one feature correctly it was usually the source. The most common error was to mix up tributary and confluence.

(b) About half the candidates identified the correct definition as 'the volume of water which flows through a river channel in a given time'. Distractors chosen by candidates were usually the ones about the speed at which water flows and the load a river can carry.

(c) (i) Many candidates found this question difficult. Stronger answers suggested correct ideas about considering velocity and depth of the river, accessibility of fieldwork sites, and spacing out fieldwork sites along the river course. Weaker answers suggested that safety was important but did not develop their ideas. Other weak answers suggested going to meanders or steep areas of the river, but these ideas showed no understanding of why they may be appropriate.

(ii) 9 per cent did not attempt the question. Whilst most candidates understood the meaning of a pilot study, many answers did not suggest how it would help fieldwork preparation. Weaker responses merely suggested that a pilot study would be an opportunity to 'practise fieldwork' or 'prepare for fieldwork' which they were told in the question. Stronger responses explained that a pilot study would be a good chance to practise fieldwork techniques, or make sure that they had the correct equipment and that the equipment worked, or they could decide what each individual person in a group would do in conducting the fieldwork tasks.

(d) (i) 12 per cent of candidates did not attempt to describe a fieldwork method to measure river velocity. Candidates who did answer the question varied in the quality and accuracy of their ideas. Most candidates used a technique based on timing a floating object over a measured distance downstream. There were many detailed descriptions of this method, possibly based on fieldwork they had done, but the weaker answers were simplistic. Weak answers included 'floating something in the river and timing it' but they omitted detail about what they could use as a float, measuring a specific distance, and marking the starting and finishing points. A common mistake was reference to timing a float and then measuring the distance it had travelled.

(ii) The question discriminated well. Strong responses used the photographs to describe the two methods of measurement by referring to the tape measure and ruler. Weaker responses struggled to describe how the tape measure was extended across the river from bank to bank. Some candidates just said 'they measured the width and depth' with no elaboration of how it was done. Some candidates did not use the photographs and so described using ranging poles on either side of the river to measure width, and using a rock tied to string to measure depth.

(iii) Most candidates made the correct calculation of depth. Two errors were that some candidates wrongly rounded their answer down to 0.4 and others added the 10 figures but inserted the total rather than dividing this by 10 to get the average.

(e) (i) Apart from the 6 per cent of candidates who did not attempt the question, most candidates drew the bar accurately. A few candidates misread the scale and so plotted inaccurately.

(ii) Most candidates made the correct conclusion to the hypothesis and supported their decision with accurate statistics. A few candidates did not identify the discharge at two sites and did not gain the evidence mark.

(iii) 8 per cent of candidates did not attempt the question. Many candidates found this to be a difficult question, and many scored a maximum of 1 mark. Candidates often scored 1 mark for referring to water brought by tributaries, but few candidates developed this idea by linking it to water coming from a large drainage basin as shown in Fig. 2.1. Many candidates incorrectly suggested that increased discharge was due to faster river flow or increased load.

(f) (i) There was a 5 per cent omission rate on this question. However, most candidates plotted the point accurately. A few candidates plotted wrongly on the line above or below, either by misreading the scale or being careless.

(ii) Most candidates made the correct choice of conclusion, although some stated that the hypothesis was true. Good answers supported their decision by stating the increase or decrease of sinuosity score between different sites and giving accurate supporting data. Weaker answers gave figures but did not state whether they were supporting an increase or a decrease in meander size.

(g) 11 per cent of candidates did not attempt the final question on the paper and many found it difficult, but it achieved a spread of marks. Strong answers were able to explain the process of meander formation. They referred to erosion and deposition, linking the processes appropriately to fast and slow speed of flow on the inner and outer banks of a meander. By contrast, weaker answers tried to explain meander formation with phrases such as 'the river swinging around rocks in its path'. Diagrams also varied in quality and relevance. The best diagrams were labelled and identified the processes happening on the inner and outer parts of the meander. However, some diagrams only duplicated information from the written explanation.

GEOGRAPHY

Paper 0460/42
Alternative to Coursework

Key messages

A few tips to pass on to candidates for future examination sessions.

- 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*. Make your decision after weighing up the evidence, then state it at the start of your answer. Some candidates provide the correct evidence but seem to forget to write down a decision. If you agree with the hypothesis, do not just repeat the wording of the hypothesis; you need to make a decision about it and state it. No credit is given for just repeating the hypothesis word for word.
- When giving data in answers, always give the units if they are not stated for you, e.g. m/sec. If data is provided in a table, then candidates are expected to use the exact data, not make references to *'about'* or *'around'* a general figure.
- Take care when adding plots to graphs and use the key provided. Any numerical answers should be clear, e.g. a 4 often looks like a 9, a 2 like a 5, a 0 like a 6, a 1 like a 7. On this paper, the answers to **Question 1(d)(ii)**, **Question 1(c)(i)** and **(ii)** were not always clear for these reasons.
- Read questions carefully and identify the command word, e.g. *Describe, Explain...* and also the key words, for example, if asked for *data* then statistics are required, whereas being asked for *evidence* could involve description as well as statistics. It might be helpful if candidates underlined the key command words in a question.
- When asked to compare or describe differences, 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. It is also important to indicate which statistics relate to which sites if appropriate. This was especially relevant to most hypothesis questions where comparisons were needed, e.g. **Question 1 (e)(ii)**, **Question 2(d)(iv)** and **Question 2(e)(ii)**.
- Check that you are using the resources that a question refers you to for evidence or data. For example, **Question 2(d)(iv)** referred candidates to Figs 2.3 and 2.4 and Tables 2.2 and 2.3, but some candidates gave an answer that took information from Fig. 2.5 and Table 2.4.
- Remember that some resources will be in the Insert and not on the examination paper. If you are referred to a map or graph and a table, use statistics from the table rather than try and judge them from the map or graph which can cause inaccuracy.
- 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 this way; in this session, this was particularly the case with **Questions 1(d)(i)**, **1(e)(i)**, **1(g)(i)**, **2(b)**, **2(d)(iii)** and **2(e)(i)**. Note that, where there is a completion task, the instructions are now **emboldened** to try and avoid them being missed. It is better to use a pencil when completing graphs or diagrams so that errors can be erased and corrected; candidates who need to correct answers in ink often make their answer difficult to read/credit.
- Use a ruler and a bold, sharp pencil to improve accuracy and presentation where required. This was particularly the case with the bar graphs, a pie graph and a graph that required a cross to be plotted. Freehand poorly executed irregular lines were often noted in **Question 2(e)(i)**.
- Consider the marks awarded. Examiners do not expect candidates to be writing outside the lines provided, so do not write a paragraph when only two lines are given as this wastes time.
- As all scripts are scanned for marking, it would be preferable for candidates to write in black ink, and make sure any plotting and shading of graphs stand out clearly.
- If you have to write more than the lines allow, there are additional lined pages that you can use at the back of the examination paper. Indicate this with a phrase such as (*continued on page 16*). This is very helpful to the examiner in finding the rest of your answer. Also make sure you have indicated the correct question number on the extra pages; in this session, a few candidates gave an incorrect question reference which made it difficult to match to the correct answer earlier in the booklet. It is also not helpful just to state the page number that the extra work relates to. There should be no need for you to request additional booklets.

- Bear in mind that if an examiner cannot read your writing, a mark cannot be awarded. Make sure all your work is legible.

General comments

Most candidates found this examination enabled them to demonstrate what they knew, understood and could do, especially in **Question 2**. The overall range of marks was from 1 to 57/60 with weaker candidates scoring on the practical questions, such as drawing graphs, and those of higher ability scoring well on the more challenging sections requiring explanation, comparison and judgement especially regarding hypotheses and supporting statements backed up by data.

There is less general advice to be given for areas for improvement with this paper than with others. As there are no choices to make, it is difficult to miss sections out (though many candidates still do) and on this paper there were a few sections that indicated a high percentage of *No Response*. These were especially noticeable where graph or table completions were required. If there is a graph or map on the examination paper, candidates should expect to have to complete one; it would be very unusual if a graph or map on the exam paper was already completed. All the instructions for completing graphs and diagrams are **emboldened**, so candidates should not miss these.

There may have been a few time issues given a few *No Response* answers at the end of **Question 2**, but the booklet format does not allow or encourage over-writing of sub-sections and not many candidates needed to write more than the lines allowed for. Most points for teachers to consider, when preparing candidates for future questions, relate to misunderstanding or ignoring command words. Here, plenty of practice using past papers to ensure they read the instructions carefully and complete graphs and other practical activities within the time allowed would improve performance. Particular questions where candidates do not score well often relate to them not taking time to thoroughly read and understand the resources referred to. This may then result in some candidates not obtaining a mark in line with their geographical ability.

Particular issues for attention that stood out on this paper included a lack of knowledge and understanding about coastal processes, especially regarding longshore drift in **Question 1(f)**, wave action in **Question 1(g)(iii)** and measuring a beach profile in **Question 1(h)**. These are areas that centres could focus on when teaching the coastal part of the syllabus. **Question 2** was more accessible with no major areas of concern. Overall, the physical geography question proved more difficult for candidates than the human geography question in this examination series.

Centres should recognise that, although this is an *Alternative to Coursework* examination, candidates will still be expected to show that they know how fieldwork equipment can be used and how fieldwork methodology, demonstrated in the *Route to Geographical Enquiry* in the syllabus, is implemented even if they have only limited opportunities to carry it out in and around the centre.

Comments on specific questions

Question 1

(a) Many could identify the beach as being made of shingle or pebbles (not sand) but beyond that, apart from the gentle slope being recognised by some, candidates tended to describe what was in the photo not the beach. Consequently there were references to the cliffs, the groynes, waves, longshore drift and vegetation which are not part of the beach. The best answers referred to the shape and slope of the beach as well as the pebbles or shingle.

(b) It is always important to read the question; in this case, candidates were asked to suggest one different precaution that the students (not the teachers) could take to reduce the risk of each danger. A few put forward the idea of cancelling or postponing the fieldwork, which is not a valid precaution. Checking the forecast regarding heavy rain had already been done; they needed to wear raincoats or waterproof clothing or even take an umbrella. Avoiding the high cliffs and not working at the back of the beach were sensible ideas; taking climbing gear, helmets or getting two students to stand beneath the cliffs to warn others were not valid ideas. If powerful waves are breaking on the beach, the sensible idea would be to do the work well back from the waves, not ‘make sure you can swim’ as some candidates suggested. If the beach is covered by high tide,

then better to do the work at low tide instead of using a boat or wearing a life jacket. Note the question asked for a different precaution for each possible danger, not the same one as repeated by a few candidates. Taking a mobile phone or working in groups were common but inappropriate answers.

(c) (i) A degree of tolerance was allowed to cover for any inaccuracy with the ruler provided on the question paper. This allowed most candidates to measure and give width and depth figures that were acceptable. The most accurate answers were 65 mm width and 28 mm depth; the tolerance allowed data from 65–66 mm for width and 28–29 mm for depth. Most responses obtained 2 marks. Common errors included 67 mm width and 27mm depth. Some gave data in cm instead of mm despite the latter being stated in the box.

(ii) No marks were awarded for showing any working as candidates can use a calculator, so if the answer is correct, they obviously knew how to work it out. To prevent error carried forward from **(c)(i)**, a range of answers from 54.6–55.3 mm was allowed that considered the tolerance allowed in the previous question. A few showed part-calculations such as adding their measurements together but not dividing by 3 so there was no final answer, and a small number left it blank.

(d) (i) Many candidates did not attempt this question. Those who did plotted it accurately, but a few did not and plotted at 50 and 54, but most gained a mark.

(ii) Almost all correctly chose beach material number 2, whilst some picked 12 (which was the second largest) and some chose 18 which was the number they had just plotted.

(e) (i) This was another graph completion question. Some were incorrect in plotting the cross at 90 mm or 92 mm or slightly off the 20 m distance line. Some plotted 91 m against 20 mm instead of 91 mm against 20 m. 5 per cent of candidates did not attempt this question. Some drew a thick pencil cross which made accuracy of the centre hard to judge. Some candidates joined up the points or drew a best-fit line which was not required.

(ii) It was important for candidates to look carefully at the graph and data in the table before they made their hypothesis decision. Although the graph shows a negative correlation, it cannot be completely true that beach material gets smaller from north to south between the groynes because there are examples where it gets larger than at the previous site. Consequently, while the negative trend is true, there are exceptions, which is why the correct decision which was made by most candidates was that the hypothesis was ‘generally true’. Most candidates did make this choice but then gave qualitative statements about the size getting bigger or smaller instead of using the data to support their choice. The best answers referred to the sites or a distance and compared the sizes showing that, in some cases, it increased whilst in others it decreased.

(f) Candidates’ knowledge and understanding about longshore drift and the processes related to it tended to be weak. This is an aspect of coastal activity that should be taught within the coast’s topic of the specification. A significant number did not attempt the question whilst others just described wave movement up and down the beach. Only a few could produce an answer that linked prevailing winds, swash angles, backwash angles and pebble movement along the beach. A few drew the standard longshore drift diagram but could not describe what was happening, and often prevailing wind direction was shown at a different angle to the swash direction. A few described in detail how they would measure longshore drift using painted pebbles, but this was not required. Although a number of candidates drew a diagram, the labels were not annotated with explanation about how longshore drift took place, so few marks were gained from it.

(g) (i) The question stem clearly stated ‘complete the histogram’; however, many did not attempt this question leaving the last two columns blank on the Site 3 graph. Those that did usually plotted 6 and 9 accurately, though some plotted other numbers for 76–100 and >100 – usually 5 and 8. Most did well and gained two marks.

(ii) Most candidates made the correct choice by agreeing with the hypothesis and gave some accurate evidence comparing Site 1 at the front of the beach with Site 3 at the back. Site 2 information was irrelevant to the argument as the comparison was from the sea towards the back of the beach. A common error, however, was to state that in Site 3 the majority or most of the material was over 100 mm. This was not true as the majority or most was from 76 mm to over 100 mm. Candidates should be careful in their use of the word 'majority' which means more than half. The best answers compared Sites 1 and 3 or gave the 10 m/50 m distances and compared the number of pieces of different sizes that matched the hypothesis.

(iii) The best answers referred to the swash and backwash and their capability to move different size material to particular locations on the beach. Powerful swash waves leaving heavy material at the back and smaller material fetched down the beach by backwash were common and accurate reasons were given. Cliff falls were rarely seen but can explain why large materials may be found at the back of the beach. Candidates did show some knowledge of different wave and erosional processes but not how they affected the distribution of beach material. Suggestions that people moved material around the beach were not accepted.

(h) Candidates were limited to three pieces of equipment to use as shown in the Insert which were two ranging poles, a clinometer, and a tape measure. They were asked how they would measure a beach profile in much the same way as previous river questions have asked about gradient or velocity, both of which use similar equipment and techniques. Many decided they would put a ranging pole at the edge of the sea and back of the beach without explaining why or linking it to the creation of a transect. They then used the same ranging poles either at breaks of slope or at equal intervals (not both as some candidates stated), put each pole in the sand at one end, measured the distance with the tape measure, then used the clinometer sighted from one pole to the other one to read an angle (not the gradient). After that, they repeated the method up the beach to get the whole profile. A few did this and scored well whilst others added new pieces of equipment to help with the fieldwork. Some did not know what the equipment was used for, especially regarding the clinometer which was often incorrectly put forward as a tool for measuring distance or to measure the size of pebbles.

Question 2

(a) (i) The majority of candidates correctly judged that quarrying was a primary activity, though some gave the incorrect alternatives with 'secondary' being the highest incorrect choice. A small number missed it out completely.

(ii) Most candidates could make a simple observation that the quarry was large or deep or wide, which would gain 1 mark, but few could provide a second descriptive point such as it was on a hillside or there was a road around the edge. The better responses mostly identified the stair-like layers on the quarry sides; others tended to give relative locations that were irrelevant, e.g. it was close to a factory or it was surrounded by vegetation or it was in a noisy area close to housing. As with **Question 1(a)**, candidates needed to describe the specific feature required, not describe all they could see in the photograph.

(b) A few candidates did not attempt the pie graph. Of those who did, most candidates completed it accurately. There were a few that did not follow the order of the key and drew the plot in the wrong place but, if they shaded the two sections correctly, they still gained a shading mark. A common shading error included the vertical lines being far too diagonal for credit.

(c) Rows 3, 4 and 6 were the correct features of a good questionnaire and most candidates gained marks here. Row 6 was the most popular correct choice, but row 2 was often wrongly selected ahead of row 3.

(d) (i) A large majority chose the benefit as *'The quarry owner supports the local community'*. The most common incorrect answer was *'It provides employment for local people'*.

(ii) Although a majority chose the correct problem, the number was lower than those getting **(d)(i)** correct. The right answer was '*Lorries are too big for local roads and damage the pavement'*. The most common incorrect choice was the reference to dust covering houses and cars along with the noise from blasting, which does not really relate to being dangerous in the same way as the pavement damage.

(iii) There was 1 mark here for plotting 119 and 139 correctly, 1 mark for plotting 156 correctly and a third mark for shading the sections correctly in the order of the key. Many candidates did all three requirements correctly, but a few did not plot the 156 line as they wrongly assumed that the whole bar had to be shaded up to 160. A few plotted the data in the wrong order, thereby making it hard to credit shading marks. 9 per cent of candidates did not attempt this question and so missed out on 3 marks. At the top of the page the stem clearly says '… *Use the results in Table 2.2 to* ***complete Fig 2.4***' and, comparing the graph with the completed one, it is clear to see a large space to add the plots and shading.

(iv) Accurate decisions were made by most candidates who judged the hypothesis as incorrect and gave good data evidence as to why there were more problems than benefits. One common error was to say that 156 people thought there were problems and 99 people thought there were benefits, but the numbers related to the number of answers given, **not** the number of people. Candidates also needed to be aware that just quoting two comparative figures is meaningless if they are not being used to support a statement, e.g. '37 per cent of answers were good and 63 per cent of answers were bad' needed to support a comparative statement saying there were more answers about the quarry causing problems than benefits.

(e) (i) Almost all candidates plotted the two bars correctly and shaded them in according to the key for two marks. However, a significant minority did not attempt the plotting. Many plotted the 30 figure correctly but fewer judged the 19 line accurately, often drawing the plot at 18. Hardly any candidates produced inaccurate shading, but a few did draw the diagonal in the wrong direction.

(ii) As with the previous hypothesis question, many candidates made a correct judgement and provided supporting evidence. Most recognised that the hotels and restaurants were most affected badly by the quarry compared with shops that were least affected. A comparison of farming with transport was acceptable, but with transport figures being relatively high, that was not the best or most obvious choice. A few used the data for the least affected columns such as shops with 28 per cent not affected and hotels 12 per cent not affected. Whichever data they used, both would equally support the hypothesis being correct. A small number just listed comparative data with no judgement made about the hypothesis. Copying out pairs of data is a meaningless exercise unless it is used to support a statement.

(iii) It was important for candidates to read the question carefully as they should have focussed their responses on the stated impacts of the quarry on the businesses listed and not just described an impact. For example, regarding hotels, an answer that said it would be noisy whilst eating their meals needed to add something like the fact that the noise might put them off coming again and the hotel would lose business. Air pollution was often stated referring to the effect of dust, but how would that affect the farming business? Being late for school, for example, as an effect of congestion would not be an effect on business nor would more accidents or people deciding to walk. It was noticeable that several candidates stated that the farm or the hotel would be 'affected' but never elaborated on how or why it was a positive or negative effect. Overall, most candidates could suggest ideas that by implication would affect business.

(f) Four photos were provided as stimuli to get candidates to consider how these types of development in a disused quarry might benefit local people. Candidates were not credited with marks for just describing what the photos showed or copying the captions. They needed to show some insight with elaborated responses as to the benefits for local people with the emphasis on the local people not people from outside the local area. The best answers suggested, for example, that the trail could be used for walking or hiking which would improve fitness and provide exercise, and that local people might gain employment as tour guides.

The caravan site would be bringing outsiders into the area (not foreign currency though) and local people could benefit by renting out sites or selling local products such as farm eggs to the visitors. Many candidates thought the local people would benefit by taking their caravans to the quarry, but this is unlikely as by definition they lived there. Mountain biking could encourage worthwhile fitness and exercise, especially for young people, and might bring visitors for events, thereby benefitting

local people running hotels or restaurants or even a bike equipment shop. Bearing in mind the candidates were told at the start of **Question 2** that the quarry was in the Peak District in northern England (an MEDC), the idea that people would fish and gain income by selling the fish or would be fishing for food was not appropriate. As the fishing photo shows, the benefit would be for a relaxing hobby and local people could set up a fishing tackle shop or local cafes would benefit too.

GEOGRAPHY

Paper 0460/43
Alternative to Coursework 43

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 or make judgements, use terms such as *higher or lower*, rather than just listing comparative statistics. The use of 'only' with statistics is not accepted as a comparative statement.
- 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 Fig. 2.2 and Table 2.1*.
- Attempt all completion tasks on graphs, tables, or diagrams – not all the answers are on lines and in writing. Many candidates miss out on relatively easy marks by not attempting these types of questions.
- Consider 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 as this wastes time.
- If you have to write more than the lines allow, 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. Use a ruler to draw lines. Always shade bar graphs and pie charts accurately. Make sure the shading matches that shown in the key and the segments are drawn in the same order as the key.
- When you think you have finished, check that you have not missed out a question. Some questions may be hard to spot 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 3 to 57 out of 60 which is similar to previous years. Weaker candidates scored on the practical questions, such as drawing and interpreting graphs and tables, and candidates of higher ability scored well on the more challenging sections requiring explanation and judgement, especially regarding hypotheses. Most candidates answered **Question 2** slightly more successfully than **Question 1**.

The following general advice is given about areas for improvement in the Alternative to Coursework paper. As there are no choices to make, it is difficult to miss out sections, although some candidates omit graph completion questions which are seen as being 'easier' to answer. This is an on-going problem from year to year, despite it being highlighted in each report. 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. Questions where candidates did not score well often related to them not carefully reading the question, for example, **Question 1(b)(i)** where some candidates wrote about where to site a rain gauge rather than how to use it. As in some previous papers **Question 2(c)** required candidates to consider problems with a specific fieldwork method and **Question 2(f)** required candidates to suggest a suitable methodology to extend the 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 worthy of credit.

Centres should realise that, although this is an Alternative to Coursework examination, candidates will still be expected to show that they know how fieldwork equipment is used and appropriate fieldwork techniques, even if they have only limited opportunity for fieldwork within the centre. For example, **Questions 1(a)**, **1(b)(i)**, **1(b)(ii)**, **1(d)(i)** and **1(d)(ii)** focussed on specific equipment and techniques commonly used in fieldwork. Centres are encouraged to carry out basic fieldwork with their 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) Candidates scored well on the first question. Most were familiar with a Stevenson Screen and recognised the different features and why they were important. The most popular features which were described were the white colour, the legs, and the slats. Generally, candidates explained the significance of these features well. Weaker answers stated that the equipment should be 'above the ground' but this was too vague to credit. Some candidates misinterpreted the question and wrongly described the instruments which would be in a Stevenson Screen or described and explained where it should be sited.

(b) (i) The question differentiated well. Better candidates used the diagram to include both the collecting vessel and the measuring tube in their explanation. They explained how the gauge was placed in the ground and left to collect rainwater for a specified period of time, and then the collected water was poured into a measuring cylinder where the scale could be read to measure the rainfall. Some weaker responses mistakenly suggested that the gauge was placed underground, and that the rainfall was collected when 'it stopped raining'. As in the previous question, some candidates incorrectly focussed on where to site the rain gauge.

(ii) The question was answered well by many candidates who often scored full marks. The factors usually suggested were siting away from trees or in an open area, away from buildings and people or animals, and on flat land. Weaker responses were typified by statements such as 'where there is enough rain' and 'away from the wind' which showed no understanding of the fieldwork methodology.

(c) (i) Nearly all candidates correctly identified the correct day and time from Table 1.1.

(ii) 5 per cent of candidates did not attempt to plot the data. Other candidates were usually correct in plotting the data. Weaker answers had made the mistake of misreading the horizontal atmospheric pressure scale which resulted in candidates plotting between 1001 and 1002 mb.

(iii) 12 per cent of candidates did not draw in a best-fit line. Where candidates did attempt the question, most were successful in drawing the line accurately. To gain credit, the best-fit line had to be drawn at an angle of approximately 45° from top left to bottom right and have four plots above and below the line. Both straight and curved lines were accepted. A few weak responses showed no understanding of a best-fit line and drew it horizontally or from bottom left to top right.

(iv) The question gave good differentiation between candidates. Despite drawing the best-fit line accurately, some candidates stated that the hypothesis was false. Other candidates concluded that the hypothesis was partly or generally true which was not accepted. There is a clear relationship shown on the graph with no significant outliers. Candidates cannot assume that a hypothesis can only be accepted as true if there is a perfect relationship between the variables. Most candidates agreed with the hypothesis and supported their conclusion with a qualifying statement and

appropriate statistics which showed the relationship. Weaker responses repeated the wording of the hypothesis so did not gain a statement mark.

(d) (i) Most candidates correctly identified that an anemometer is used to measure wind speed. The most common distractor chosen was barometer.

(ii) Many candidates scored both marks by accurately explaining how a wind vane works to show wind direction. However, some candidates showed a lack of understanding by stating that the wind 'turns the wind vane' rather than the arrow or pointer. Also, some candidates stated that the arrow points to where 'the wind is blowing to', again showing a misunderstanding of how a wind vane works.

(iii) Most candidates plotted the measurement correctly. A few candidates plotted the point incorrectly on the east line.

(iv) The question was challenging for some candidates but produced good differentiation. Many candidates made a valid contrast between winds coming from the east and west, although a few candidates did not gain credit for stating that the winds blew 'to' the east. Many gained credit for giving data which supported the hypothesis about wind speed from the east and west directions.

(e) The question discriminated well with marks ranging from 1 to 4. Stronger answers showed good knowledge of cloud types and the appropriate descriptions. Many candidates could not name the three cloud types but did choose the appropriate descriptions from those listed in the question. Cumulus cloud was the type most known by candidates. A few did not read the question instruction and wrote their own descriptions rather than using the ones provided.

Question 2

(a) (i) Nearly all candidates correctly identified the supermarket at building X.

(ii) Again, nearly all candidates correctly inserted the label 'Sp' at building Y. A small number wrote 'flower shop' which was not accepted.

(iii) Most candidates correctly identified the building as a household goods store. Some incorrect answers included vacant shop and supermarket.

(iv) Many candidates scored both marks by referring to the two groups of offices. Candidates often described their distribution to the north or in the centre of the town. Other valid descriptions referred to the offices being clustered or linear. Weaker responses lacked precision and wrote that the offices were 'on the edge of town' or 'on Blackburn Street' which were too vague for credit.

(b) (i) Most candidates correctly described the 1990 map data as 'collected by other people and used by the students'.

(ii) Most candidates plotted the two pieces of data accurately. Some candidates misread the scale or plotted the points away from the 'vacant shop' line. A few candidates used the wrong symbols for the plots.

(iii) Most candidates correctly stated that the hypothesis was true. Many gained marks for identifying the categories which had increased or decreased between the two dates. They also gained credit for giving paired data to show the increase or decrease in shop numbers.

(c) The quality of answers varied, although most candidates scored at least 1 mark. Candidates suggested a range of problems to complete the questionnaire. Common ideas included people refusing to answer or giving vague answers, language difficulties, not getting enough people to answer the questionnaire or getting enough people in each age group; also, the difficulty of asking or estimating which age group respondents were in. An error made by some candidates was to focus their answer on what they thought were weaknesses with the questionnaire, rather than problems completing the questionnaire which was specified in the question.

(d) (i) Most candidates completed the pie graph accurately. Some candidates made errors in drawing the dividing line inaccurately or reversed the order of the segments from that shown in the key. Other

candidates did not draw vertical lines to show 'once a month' and so failed to gain credit for shading.

(ii) Nearly all candidates identified the correct good point as 'wide variety of shops'. A few candidates wrongly suggested 'near to work'.

(iii) Also, nearly all candidates identified the bad point as 'no shelter against rain and cold'. A few candidates wrongly suggested 'empty shops and uncared for streets'.

(iv) 4 per cent of candidates did not draw the bars. However, most candidates scored both marks by drawing them accurately. For candidates who did not gain credit, it was usually because they plotted the bars inaccurately through carelessness rather than making an error in using the scale.

(v) The question discriminated well but proved difficult for some candidates. Stronger responses identified appropriate evidence to show that some responses such as 'near to home' supported the hypothesis because the number of answers differed between the age groups, whilst other responses such as 'lots of parking spaces' did not support the hypothesis because the number of answers from the age groups were similar. Candidates then supported one of their statements with data from the three age groups to gain the third mark. Weaker responses did not refer to specific points about the town centre but tried to compare good and bad points which was not what the question asked. Also, some weak answers stated that the hypothesis was true or false and tried to justify this decision.

(e) (i) Almost all candidates identified that 'new businesses occupy the empty shops' had most agreement between the three age groups.

(ii) There were many vague answers for both ideas. Many candidates realised that entertainment venues would attract the younger age group more but did not clearly explain why. Many answers suggested ideas about young people liking to enjoy themselves but did not link the idea to entertainment venues. For the idea about a traffic-free town centre, there were many answers about whether people drove to work or not or even if they were able to drive, but these were irrelevant. Candidates who focussed on the traffic-free centre were more successful in suggesting ideas about safety or noise which would be important for the older age group.

(f) 8 per cent of candidates did not attempt the final question which many found challenging. Weaker responses were sometimes irrelevant and showed no understanding of a suitable fieldwork method to identify the CBD boundary. Many wrongly wrote about using a questionnaire or doing a traffic survey. Stronger responses understood that the CBD has specific characteristics which can be identified such as building height, pedestrian flows, or specific land uses. However, not all candidates could describe how they could be investigated to delimit the CBD. Good answers usually began with the idea of creating a transect from the city centre outwards and then doing work at different points along the transect. Methods such as measuring the number of storeys on buildings or doing pedestrian counts at different distances away from the centre or mapping the different land uses were occasionally suggested by stronger responses which enabled them to score full marks.