

GEOGRAPHY

Paper 0460/11 Paper 11

Key messages

Candidates need to be able to do the following to perform well on this paper:

- Ensure that the rubric of the examination is followed correctly by answering one question from each of **Sections A, B and C**.
- Read all the questions and study the resources before choosing their three questions with care.
- Pay special attention to the command words and words which indicate the context of the question.
- Bring the correct equipment to the examination, including a ruler and a calculator.
- Answer all parts of the three chosen questions, ensuring that all sub-sections, including completion of maps and graphs, are not omitted.
- Know how to respond to command words used in questions – for example, ‘describe’; ‘suggest reasons’; ‘explain’, ‘compare’.
- Identify the correct focus specified in the question stem – for example, causes or impacts; problems or strategies; local, national or global; natural environment or people.
- Learn the meanings of geographical words and phrases to be able to define and accurately use geographical terminology. When defining words or phrases, candidates should not simply repeat a word or words as part of their definition.
- Use the mark allocations and answer space provided in the examination booklet as a guide to the length of answer required and the number of clear points that need to be made.
- Write as clearly and precisely as possible avoiding vague, general statements.
- Write in full wherever possible, especially in the final two parts of each question, ensuring that ideas are developed or linked.
- Perform basic skills using population pyramids, graphs, data tables, graphs, text, diagrams and maps of various types, referring to them in an appropriate way to support ideas rather than directly lifting material from them without any interpretation. Ensure that evidence is given where required to support an answer and that best use is made of the information provided, such as the compass, scale and key on maps.
- Practise the skill of describing the features or characteristics from a photograph.
- Base their answer only on the information in a graph, diagram or map if the question includes the phrase ‘**Using Fig. X only**.....’. Answers that do not relate to that resource should not be included as they do not gain credit.
- Learn a range of case studies so that appropriate ones can be chosen for the topics tested.
- Ensure that each case study used is at the correct scale as indicated by the wording of the question.
- Avoid writing a long introduction to any question to provide locational and background information, at the expense of answering the question set in detail.
- Develop points and link ideas wherever possible in case studies and include relevant place detail.
- Ensure that comparative language and phrases are used where a question requires a candidate to compare or identify differences.
- Explain physical processes using key terms and ideas in the correct sequence.
- Use the extra pages at the back of the question-and-answer booklet when there is not enough room to complete an answer. Indicate that the answer is continued and clearly show the number of the question on the extra page. Candidates should continue answers on the specified continuation pages rather than on other pages of the answer booklet or on extra sheets of paper.

General comments

The examination was considered appropriate for the age and ability range of candidates, and it differentiated effectively between candidates of all ability levels. The most able and well-prepared candidates performed

well across the paper and a number of excellent scripts were seen with top quality answers throughout. Indeed, most candidates were able to make an attempt at their chosen questions, apart from a minority who found it difficult to interpret questions and write relevant answers.

Candidates seemed to have sufficient time to complete the paper, however some did not complete all parts of the questions, particularly the final parts. This seemed to be due to a lack of knowledge rather than a lack of time.

Most candidates followed the rubric by selecting a question from each section as required although occasional rubric errors were seen. These consisted of candidates either answering three questions but choosing two from one section or answering all six questions. Where candidates answer every question, this reduces the time they can spend on each question and disadvantages them. Similarly, candidates are disadvantaged if they answer both questions from one section as they only gain the mark for one of them.

Questions 1, 4 and 5 were the most popular questions. There were good answers seen to all questions, including those requiring extended writing. Excellent answers were seen to all the case study questions, though of course all discriminated well and produced a range of responses. As always high-quality case study answers contained developed or linked ideas, with some clear and relevant place specific detail. Weaker responses tended to be generic ideas consisting of simple, brief statements with no place detail to support them. In some cases, a significant amount of detail included by candidates was not relevant to the question being asked, with long introductions and irrelevant background information occupying much of the answer space.

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

Comments on specific questions

Question 1

This was much more popular than **Question 2** with most candidates choosing this question.

- (a) (i)** Most candidates clearly understood and defined human migration, however it should be noted that candidates should not simply repeat a word or words, such as human, as part of their definition.
- (ii)** Most candidates answered this correctly, however there were a significant number of errors, such as mining area, which suggests that net migration is not fully understood by some.
- (iii)** This question was well answered. Most candidates were able to describe several different reasons for international migration, particularly pull factors such as employment, education and health care. Weak responses tended to use generic terms such as quality of life, opportunities or standard of living, which did not gain credit.
- (iv)** This question differentiated well. Strong responses showed some excellent understanding of a variety of ideas, particularly employment, under/over population and ageing population ideas, although the whole range of mark scheme ideas was seen.
- (b) (i)** This question was generally well answered with good use made of the resources provided. Most candidates were able to recognise both age and gender differences in the data. Some weaker responses simply listed statistics without describing the patterns seen in the population pyramid.
- (ii)** This question differentiated well and highlights the need to look carefully at the question stem, as some weaker responses which failed to gain credit considered impacts on urban rather than rural areas. Good responses considered rural impacts such as loss of workforce, social impacts, impacts on food production and the positive effects of remittances, among other valid ideas.
- (c)** This was a straightforward case study and differentiated well. Candidates need to avoid the use of an overall introduction providing context and instead should concentrate on answering the question set. Whilst many candidates expressed simple ideas, the strongest responses had developed ideas and described the difficulties faced in more detail to achieve Level 2, for example, difficulties in getting a job which leads to problems such as not being able to afford a house and so living in

squatter settlements. A common error was to consider difficulties for countries rather than the migrants themselves.

Question 2

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

- (a) (i) The majority of candidates used the map and key to place the regions in the correct rank order.
- (ii) Whilst most candidates gained one mark for describing the relationship between distance and number of commuters, few candidates developed their answer further for the second mark, which required the use of data to exemplify the relationship using statistics from two contrasting districts.
- (iii) This question differentiated well. Most candidates identified the fact that many commuters will travel by car, however many did not develop their answer beyond this idea. Some candidates did not read the answer carefully and so wrote about the effects of traffic congestion rather than the causes.
- (iv) This question was generally well answered, with a whole range of ideas which explained the importance of reducing traffic congestion. Weaker answers considered air and traffic pollution and the problems of delayed journeys but did not develop their answers beyond these ideas.
- (b) (i) Very few candidates read the question carefully, and so wrote about the advantages of these strategies, rather than explaining each strategy.
- (ii) Whilst most candidates gained some credit here, many candidates did not develop their answers beyond the idea of their chosen strategy being quicker, cheaper or repeating the idea of reducing traffic congestion, all of which did not gain credit. Candidates needed to consider the positive impacts on commuters, such as, for example, reduced travel costs, or easy accessibility to the central area, or environmental impacts such as reduced air and noise pollution.
- (c) This was a straightforward case study question; however, it was not well answered by the majority of candidates. Many did not seem to understand the term urban sprawl, and instead wrote generally about urban problems, particularly in central areas of the city. Even where valid issues were considered, such as traffic congestion or types of pollution, it was not clear that they were considering impacts on the edge of the urban area, but instead often described the impacts on the CBD.

Question 3

This question was less popular than **Question 4** and answered by a slightly smaller proportion of candidates.

- (a) (i) Most candidates correctly identified the equatorial climatic zone on the resource.
- (ii) Whilst many candidates placed the statements in the correct order, some candidates did not, and in particular tended to reverse the order of the two cloud statements.
- (iii) Many candidates are showing an understanding of the equatorial climate and the reasons for the limited variation between seasons, particularly the impact of closeness to the equator and the overhead sun. Stronger responses also considered the concentrated nature of the sun's rays and the fact that the angle of the sun varies very little during the year.
- (iv) This question discriminated well, with stronger responses demonstrating a clear understanding of the processes which result in convectional rainfall, including cooling, condensation and air/water vapour rising. Weaker answers tended to just consider evaporation and transpiration with little further development, or simply copied the statements from **3(a)(ii)** which did not demonstrate any understanding.
- (b) (i) Most candidates gained some credit here, with many candidates correctly considering three different linkages. The repetition of 'depend on' was an error made by many weaker responses which did not clearly describe how the vegetation, soil and wildlife depend on each other. A few candidates went beyond Fig. 3.2 and introduced other ideas, despite the emboldened 'using Fig. 3.2 only' in the question stem.

- (ii) This was a straightforward question; however, many candidates continued the ideas they had already outlined in **Question 3(b)(i)** rather than describing the main characteristics of the natural vegetation in a tropical rainforest. The idea of layers, with examples, was the most common correct answer. Ideas such as dense vegetation, emergents, lianas, buttress roots and drip tip leaves were seen but not as frequently as would be expected.
- (c) There were a few excellent answers based on detailed case studies which gained access to full marks here. However, many candidates did not develop their answers beyond simple Level 1 statements. Better answers gave developed ideas such as logging for firewood, road building for the transport of timber or building houses due to population growth, together with clear locational detail.

Question 4

This was more popular than question 3 and was answered by a slightly larger proportion of candidates.

- (a) (i) Many candidates correctly defined the term plate, however some struggled to give a clear definition here.
- (ii) Most candidates gained either both or one mark here for naming the two plates shown on the resource.
- (iii) Many candidates recognised the significance of plate margins, and some gained further marks for identifying the pattern as linear and, or uneven/clustered. Locational statements were also used to good effect by some candidates, for example describing the pattern as being around the Pacific and in the West and East, or for example, in Southeast Asia and Western South America.
- (iv) Some excellent answers showed a very clear understanding and explained the role of convergence, subduction, the melting of the crust and the build-up of magma/pressure fully. However weaker answers considered diverging plate boundaries which did not gain credit.
- (b) (i) The majority of candidates used the resource well to show an understanding of the potential problems caused by earthquakes in this area, including potential flooding if the dam broke, deaths and injuries and the collapse of housing. Weaker answers considered damage to the village/city/buildings without sufficient detail to gain credit. Or they considered a potential tsunami but did not clearly explain how it would impact on the people who live in the area shown in the resource.
- (ii) This question differentiated well. Stronger answers considered a whole range of mark scheme ideas, such as the pull factors of a job, education, family, together with the confidence in precautions such as earthquake proof buildings. Weak answers considered the attractions of volcanoes rather than earthquakes such as fertile soil, which did not gain credit.
- (c) Excellent answers were based on detailed case studies which considered both the positive and negative impacts of volcanic activity. Weaker answers simply gave a list of impacts and failed to develop their ideas further, for example fertile soil can be developed by explaining that this makes it attractive to farmers or increases crop yields.

Question 5

This question was answered by many more candidates than **Question 6**.

- (a) (i) Most candidates correctly identified the agricultural land use from the resource. The most common incorrect response was arable land.
- (ii) Most candidates used the scale and key and correctly identified two crops from the resource.
- (iii) This question differentiated well. Stronger responses often gained two out of the possible three marks, particularly with reference to the potential for exports and the availability of a local market. Few candidates noted the difference in rainfall and the difference in the range of products produced. Some answers contrasted nomadic herding and arable but with no attempt to indicate

why the latter would be more successful. Many candidates incorrectly suggested that sea water could be used for irrigation.

- (iv) Many candidates showed a good understanding of the impact of war on a country's food supply and considered a whole range of mark scheme ideas. Weaker answers tended to repeat the same ideas, rather than developing their answer further.
- (b) (i) This question discriminated well. Excellent answers clearly contrasted the two farming areas, using terms such as arable and pastoral and intensive and extensive. Weaker answers failed to draw clear comparisons between the two areas or did not show an understanding that flooding is an integral part of rice farming. Other incorrect responses considered other factors, such as climate, which cannot be clearly deduced from the photographs in this resource.
- (ii) This question was poorly answered by many candidates as little understanding was shown of the term 'relief'. Some candidates considered the impact of slopes on arable and pastoral farming; however, few developed their answers more fully than this to consider for example, the impact of slope on the use of machines, or the impact of aspect on sunshine hours and therefore crop growth.
- (c) This case study question differentiated well. Good answers gave several developed statements which described the effects of food shortage, for example the impacts of malnutrition where relevant diseases were discussed, or the impact it has on children concentrating in school. Linkages were also made between starvation and death rates or life expectancy. Weaker answers failed to develop their ideas, and listed simple ideas such as starvation, malnutrition and increases in food prices.

Question 6

Fewer candidates chose to answer this question compared to question 5.

- (a) (i) This question discriminated well, with weaker candidates unable to give a clear definition of industrial processes, with many repeating one or both words.
- (ii) This question was not well answered. Most candidates gained a mark by referring to the advanced technology being used; however, many marks were lost by vague references for example: to workers, without stating that there are few workers.
- (iii) Whilst stronger responses noted the lack of air pollution or waste products, little understanding was shown of how assembly industries might cause less impacts than manufacturing and processing industries on the local natural environment.
- (b) (i) Whilst many candidates noted the difference in terms of age of the factories, few developed their answers well beyond this idea. Candidates need to use the photographs more fully to describe the differences in the actual buildings, such as their height, size and materials they are made from, and should not consider other factors not clearly shown in the images, such as transport links.
- (ii) Many candidates considered transport costs; however little understanding was shown beyond this of why some factories are better located close to the raw materials whilst others are better located closer to their markets. For example, bulky or perishable raw materials will result in industries locating near them, or near a port, whilst bulky or perishable finished products will locate nearer to the market.
- (iii) This question discriminated well. Whilst good answers considered a range of mark scheme ideas, other answers showed little understanding of the reasons why industries might relocate. Key factors might include changes in markets, the move toward cheaper labour, to gain space to expand further, to access government incentives such as tax concessions, the increasing cost of land or increasing traffic congestion and so the move toward locations on, the edge of a city for example, as well as other mark scheme ideas.
- (c) Some excellent responses to this question were seen where candidates fully understood the idea of managing the economic activity to reduce environmental risk or impact. Good case studies considered a range of economic activities, including manufacturing industries and managing the impacts of the tourist industry, or of development of areas such as Amazonia. Strong answers used

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developed statements and locational detail to good effect. Weaker answers tended to be simple ideas rather than developed statements which simply described how the activities were being managed.

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Paper 0460/12 Paper 12

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

Comments on specific questions

Question 1

This was a very popular question and was the preferred choice for a large number of candidates, with a significant number scoring high marks and showing excellent geographical knowledge and understanding.

- (a) (i) The question was asking what population density meant and not how it is calculated. This was generally answered well with many candidates knowing that it was the number of people in a square kilometre/in a certain area. The most common errors were either to write the formula by which it is calculated or to write 'number of people in an area' with no reference to the size of the area.
- (ii) Many candidates identified the lack of rainfall as a reason for the low population density. Fewer referred to the temperature being too high to survive in. Whilst many stated that it is hot, this was insufficient as hot temperatures alone are insufficient to prevent settlement. 'Hot' needed to be qualified with a word like 'very', 'extremely' or 'unbearably'. Another common error was reference to soils or the inability to farm rather than climatic factors as required.
- (iii) The question discriminated well. The most common answers from well prepared candidates focused on steep relief, poor access and dense vegetation. There were many misconceptions about the river flooding and a lack of understanding shown by weaker responses that suggested a lack of service provision.
- (iv) Many candidates wrote answers which repeated 'natural resources' many times but did not specify particular natural resources and/or explain how each would attract people as shown in the following extract from the mark scheme:

Water/river is available for drinking/washing/fishing/water crops/HEP/for factories;
Fertile land/good soil for food production/agriculture (farming);
wood/stone/trees/forests for building;
wood/coal for burning/cooking/heating;
mining/quarrying/minerals provide employment/jobs/industry/wealth.

It was rare to see an answer which mentioned water, minerals or wood for example. The most common correct responses referred to mining which created jobs and fertile soil which enabled

food to be produced, but it was rare to see more ideas therefore there were few answers with full marks.

- (b)(i) Many candidates used the resource well and scored three marks. They usually referenced Lake Victoria, the Indian Ocean and Nairobi. Less referred to direction in their answer though some candidates did describe the contrast between the high concentration of people in the south and low concentration in the north.
- (ii) There was a great deal of information contained within this resource but generally candidates handled this well, effectively cross-referencing Fig. 1.4 with the distribution map and showing good understanding. Most candidates scored well, and many gained high marks with references to significant features such as water availability, the port, the railway, Lake Victoria and the important towns. Many included several different ideas, whilst others gained credit for developing a smaller number of ideas. Both approaches were acceptable.
- (c) There was a variety of case studies seen, with Bangladesh and Nigeria being the most popular choices. Many candidates knew what overpopulation was but did not give developed answers about the impacts. Better answers developed ideas about pressure on services, housing, water, food supplies, health care and education, along with a lack of employment. Weaker answers produced lists of simple ideas, though some developed part of their answers for example by linking unemployment with issues such as crime, poverty and the development of squatter settlements. Some wrongly wrote about causes of overpopulation and solutions to it, such as the China one-child policy. Some candidates spent too long writing about the background of the country before attempting the question. The answer would certainly have been place specific, but the problem was that there was then not always enough opportunity to write sufficient developed statements as too much time had been spent setting the scene. To achieve full marks a fine balance has to be reached between including place detail and allowing time to write and develop the actual answer.

Question 2

Only a very small number of candidates answered this question, and it was far less popular than **Question 1**. In many cases it was answered by candidates as part of a rubric error, thus many responses were relatively poor.

- (a)(i) Few candidates gave a credit worthy definition which referred to 'countryside' or an area which is 'not built up'. Many responses were vague e.g., 'not many people live there' and many candidates incorrectly referred to villages, the edges of a city or areas which were 'poor' or 'less developed', which is not true of rural areas in many parts of the World.
- (ii) Whilst some candidates correctly identified both settlements more were successful with Kenema than Gofor, as some used the scale and/or compass directions incorrectly.
- (iii) Many candidates identified the general store but there were also a significant number of incorrect choices, especially hospital and jewellers. Few candidates who identified the general store went on to give valid reasons. Little understanding was shown of low order services, threshold population or convenience goods and many candidates simply gave examples of goods sold or stated that these goods were cheap.
- (iv) The question discriminated well. Good answers identified several ideas from the mark scheme such as distance, crossing the river, accessibility, and more generic ideas such as needing children to work, the inability to pay for education or transport, and traditional views on girls attending school.
- (b)(i) Answers varied in accuracy with more candidates identifying linear than either of the other patterns. The most common errors were the use of incorrect words such as 'scattered' and 'nuclear'.
- (ii) More perceptive candidates linked factors with a specific settlement pattern, such as the idea of linear settlements developing along a road or river, or dispersed settlements developing where there is farmland. However, many candidates were unable to think generally in terms of factors underlying settlement development and did not refer to specific settlement patterns. Such answers typically referred in general terms to the growth of settlements in rural areas.

- (c) This was a relatively straightforward case study however many candidates made poor choices, including their local village, town or city but rarely focused on the CBD as the question required. Even those who referred to the CBD of London, New York, Johannesburg or similar large cities typically briefly listed high rise buildings, heavy traffic, offices and specific services, without any attempt to develop their ideas and/or add explanation. It was rare to see any reference to demand, cost and availability of land or access.

Question 3

This was a far more popular question than **Question 4**.

- (a) (i) Most candidates correctly identified zone C, though zone B was a common incorrect response.
- (ii) The question differentiated well. Most candidates referred to the Equator, but the range of latitude was sometimes incorrect. Weaker responses just listed countries where there was an Equatorial climate, whilst others did not understand 'distribution' and described the characteristics of the equatorial climate.
- (iii) The question also gave good differentiation. Many candidates referred to the Equator and the overhead sun, whilst others suggested the concentration of sun's rays or maximum insolation. Many weaker responses suggested that rainfall, humidity, global warming or other factors affected temperatures. Others were on the right track but gave vague responses such as 'most sun', 'lots of sunshine' and 'near the sun'.
- (iv) Whilst many candidates showed little detailed knowledge and understanding, there was a small but significant number of excellent responses which included ideas about wind direction, the existence of a rain shadow and the impact of descending air from a high-pressure system. Weaker responses typically tended to only score marks by referring to one or two simple ideas such as the lack of water sources, lack of evaporation/transpiration or the absence of clouds. Cold ocean currents were occasionally mentioned but few candidates showed any understanding of why they resulted in a lack of rain.
- (b) (i) A significant number of candidates scored high marks, though some candidates did not score marks for data as their statistics were not within the mark scheme tolerance. An error made by some candidates was to read the percentages as incremental rather than discrete e.g. they stated that commercial agriculture in Africa was responsible for 75 per cent of deforestation. Others lost marks by not giving comparative answers and using words like 'more' or 'less'.
- (ii) Most candidates identified a variety of reasons, some gaining high marks for several simple ideas whilst others developed the points they made. Some candidates restricted their answer to the various uses of timber rather than referring to other reasons for deforestation such as mining, road building, settlement expansion etc. Errors made included vague answers about 'building' and 'infrastructure', answers about agricultural developments and others about the use of trees in medicines.
- (c) Amazonia was the most common example, with many other candidates naming Borneo. There was a complete range of quality in answers. More perceptive candidates wrote in detail about habitat loss, impacts on the food chain and biodiversity and/or referred to soil erosion and flooding. Many candidates did not develop or link their ideas to gain higher marks and those who did not read the question carefully wrote about effects on people and global impacts.

Question 4

This question was not a popular choice and, as in **Question 2**, was answered by some candidates as part of a rubric error. There were some excellent responses from some of the candidates who correctly chose to answer it.

- (a) (i) Whilst there were a significant number of clear and accurate definitions many candidates did not score the mark as they either repeated the word 'erosion' and/or did not mention the sea or waves.
- (ii) Most candidates correctly identified the two photographs from the descriptions.

- (iii) This discriminated well, many candidates were able to show their knowledge of one or more of the processes whilst others mixed up the processes or did not define the terms with reference to the sea, some specifically focussing on river processes.
 - (iv) Answers referring to fishing, the port and the tourist industry were common but not all candidates linked these to why people want to live in the area e.g., employment or wealth created by the port or the tourist industry. A significant minority simply focused on leisure opportunities offered by the area, thus explaining why it is attractive to tourists, rather than why it is attractive as a place to live.
- (b) (i) Answers varied in quality and relevance. Most candidates correctly described how the spit had grown longer whilst the most observant also referenced its growth to the north, and the fact that it became curved at the end and/or joined the mainland. Weak responses tended to use words like 'bigger' which were not sufficiently precise.
- (ii) There were few accurate and detailed answers. Whilst some candidates explained that longshore drift would have caused the changes, only a relatively small number were able to describe its precise sequence with clarity, by referring to the impacts of swash and backwash. There were many incorrect references to erosional processes and references to the processes named in (a) (iii).
- (c) Named examples were rare, many of the better answers being the Holderness coast, where good answers explained in detail how the various measures were effective. Some excellent answers were seen which considered a range of coastal management strategies. For some candidates, however, the explanation of each method was limited, often just simply explained as 'reducing erosion' rather than how this is actually achieved. Some candidates wrote generally about hard and soft engineering but did not fully consider the actual techniques used to reduce erosion.

Question 5

This question was answered by a large number of candidates.

- (a) (i) Most candidates gained a mark by including reference to 'selling' or 'profit'.
- (ii) Most candidates correctly identified the two natural inputs. Irrigation sprays and chemical fertilizers were the most common incorrect answers. A small number of candidates circled more than two inputs.
- (iii) The question discriminated well. Better candidates referred to the market, cheaper transport, and the opportunity to purchase farm equipment or supplies. Weaker answers suggested 'easy transport' or referred to inappropriate ideas such as water supply or electricity.
- (iv) Most candidates stated two correct climatic factors, typically temperature and rainfall, but few linked each one to a specific land use, therefore most scored two marks. Many candidates made vague references to 'crops would not grow' if it is too cold or too wet, or that 'irrigation might be required' if it is hot and dry. The question asked how the factors influenced **land use** and only the more perceptive made the link between temperatures and specific crops such as wheat and maize, and/or between high rainfall and rice farming for example. Very weak responses included references to factors other than climate (e.g., soil, relief) or vaguely wrote about 'suitable weather'.
- (b) (i) Most candidates correctly identified the three processes.
- (ii) This was a good discriminator. Well prepared candidates gave a variety of reasons which focused on risk management, all year-round jobs and income, and the benefits of animal manure and crop waste, some of which were developed and/or exemplified. Weaker answers just referred to inappropriate ideas, such as more profit from more sales and farmers producing more types of food.
- (c) The most common case studies were South Sudan, Somalia and Zimbabwe. Candidates generally identified physical factors, such as drought or flooding, and human factors such as war and corruption, successful candidates explained why each factor had different effects on crop and animal farming. Many answers also focused on political issues, for example in Zimbabwe, and their effects on both food production and distribution. Many candidates achieved Level 2 as they

developed at least one point, however full mark answers were not common as there was little place detail included.

Question 6

This question was not chosen by many candidates.

- (a) (i) A significant number of candidates gave a correct definition by linking the ideas of raw materials and finished product. Others struggled, many repeating the word 'processes' or 'processing'.
- (ii) Most candidates correctly identified two outputs, usually aluminium and waste. Incorrect answers were usually 'alumina', which is produced as Stage 1 of the process rather than as an output of the industry.
- (iii) Many candidates realised that large amounts of bauxite were needed, and some candidates developed this idea by linking it to reduced transport costs. Other mark scheme ideas were rarely suggested, and weak responses referred vaguely to 'easy transport' or 'near raw materials'.
- (iv) This discriminated well with many candidates identifying the need for large amounts of cheap electricity. They also realised the importance of a reliable, inexhaustible supply. Weaker responses focused too much on the non-polluting aspects of HEP and the physical requirements to build HEP stations.
- (b) (i) Generally well answered, although for roads and railways some did not refer to what was being transported.
- (ii) This question differentiated well. Some candidates understood this well and explained clearly why a change of location would be needed suggesting ideas relating to available space, less competition, access to markets and raw materials, and cheaper or more available labour, though relatively few developed any of them for further marks. Weaker responses however usually referred to different factors but did not clearly state how it was a change in these factors which would necessitate a relocation e.g., the importance of market would be mentioned, but not that they would relocate nearer a new market, or a bigger market.
- (c) Whilst there were some high-level responses most were fairly brief as they typically gave simple ideas about water supply and did not relate them to industrial use. Many candidates did not develop or link their ideas about methods of supply e.g., reservoir and pipeline. A significant number of candidates wrote about the use of electricity for HEP, thus valid ideas tended to be limited. Common examples included South Africa, dams such as the Kariba and rivers such as the Yangtse but place specific detail was rare.

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Paper 0460/13

Paper 13

Key messages

Candidates need to be able to do the following to perform well on this paper:

- Ensure that the rubric of the examination is followed correctly by answering one question from each of **Sections A, B and C**.
- Read all the questions and study the resources before choosing their three questions with care.
- Pay special attention to the command words and words which indicate the context of the question.
- Bring the correct equipment to the examination, including a ruler and a calculator.
- Answer all parts of the three chosen questions, ensuring that all sub-sections, including completion of maps and graphs, are not omitted.
- Know how to respond to command words used in questions – for example, ‘describe’; ‘suggest reasons’; ‘explain’, ‘compare’.
- Identify the correct focus specified in the question stem – for example, causes or impacts; problems or strategies; local, national or global; natural environment or people.
- Learn the meanings of geographical words and phrases to be able to define and accurately use geographical terminology. When defining words or phrases, candidates should not simply repeat a word or words as part of their definition.
- Use the mark allocations and answer space provided in the examination booklet as a guide to the length of answer required and the number of clear points that need to be made.
- Write as clearly and precisely as possible avoiding vague, general statements.
- Write in full wherever possible, especially in the final two parts of each question, ensuring that ideas are developed or linked.
- Perform basic skills using population pyramids, graphs, data tables, graphs, text, diagrams and maps of various types, referring to them in an appropriate way to support ideas rather than directly lifting material from them without any interpretation. Ensure that evidence is given where required to support an answer and that best use is made of the information provided, such as the compass, scale and key on maps.
- Practise the skill of describing the features or characteristics from a photograph.
- Base their answer only on the information in a graph, diagram or map if the question includes the phrase ‘**Using Fig. X only**.....’. Answers that do not relate to that resource should not be included as they do not gain credit.
- Learn a range of case studies so that appropriate ones can be chosen for the topics tested.
- Ensure that each case study used is at the correct scale as indicated by the wording of the question.
- Avoid writing a long introduction to any question to provide locational and background information, at the expense of answering the question set in detail.
- Develop points and link ideas wherever possible in case studies and include relevant place detail.
- Ensure that comparative language and phrases are used where a question requires a candidate to compare or identify differences.
- Explain physical processes using key terms and ideas in the correct sequence.
- Use the extra pages at the back of the question-and-answer booklet when there is not enough room to complete an answer. Indicate that the answer is continued and clearly show the number of the question on the extra page. Candidates should continue answers on the specified continuation pages rather than on other pages of the answer booklet or on extra sheets of paper.

General comments

The examination was considered appropriate for the age and ability range of candidates, and it differentiated effectively between candidates of all ability levels. The most able and well-prepared candidates performed

well across the paper and a number of excellent scripts were seen with top quality answers throughout. Indeed, most candidates were able to make an attempt at their chosen questions, apart from a minority who found it difficult to interpret questions and write relevant answers.

Candidates seemed to have sufficient time to complete the paper, however some did not complete all parts of the questions, particularly the final parts. This seemed to be due to a lack of knowledge rather than a lack of time.

Most candidates followed the rubric by selecting a question from each section as required although occasional rubric errors were seen. These consisted of candidates either answering three questions but choosing two from one section or answering all six questions. Where candidates answer every question, this reduces the time they can spend on each question and disadvantages them. Similarly, candidates are disadvantaged if they answer both questions from one section as they only gain the mark for one of them.

Questions 1, 3 and 5 were the most popular questions. There were good answers seen to all questions, including those requiring extended writing. Excellent answers were seen to all the case study questions, though of course all discriminated well and produced a range of responses. As always high-quality case study answers contained developed or linked ideas, with some clear and relevant place specific detail. Weaker responses tended to be generic ideas consisting of simple, brief statements with no place detail to support them. In some cases, a significant amount of detail included by candidates was not relevant to the question being asked, with long introductions and irrelevant background information occupying much of the answer space.

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

Comments on specific questions

Question 1

This session this question was as popular as usual with the vast majority of candidates choosing this question.

- (a) (i)** Nearly all candidates shaded France appropriately, using the key, although the spacing of the horizontal shading varied.
- (ii)** Most candidates gained both marks. Some candidates did not round their calculation to the nearest whole number.
- (iii)** This question differentiated well. Most candidates stated that the distribution lies between 40 N and 60 N, or that the distribution was uneven, but only the more able candidates stated three valid geographical statements about the pattern of higher population density areas.
- (iv)** This question was well answered. Most candidates used map evidence to state that Iceland is isolated and/or close to the Arctic Circle or cold, but again, only the more able candidates developed their answers to explain practical difficulties, such as problems farming in colder areas, or the problems caused by isolation such as transporting goods over a large distance from overseas.
- (b) (i)** Strong answers referred to three clear ideas, however many candidates gained just two of the three marks available, often by referring to the high-rise buildings and the fact that they are close together. Fewer candidates noted the lack of green space or the building on steeper slopes. Many considered the number of cars in the photography, which did not answer the question set.
- (ii)** This question was well answered, either with five distinct problems, or by the development of ideas, such as unemployment potentially leading to higher crime rates, or traffic congestion leading to air pollution. Some candidates still tend to refer to pollution as a generic idea and need to state which type of pollution they are referring to if they are to gain credit.
- (c)** This was a straightforward case study and differentiated well. On occasions candidates misread the question and wrote about the consequences of overpopulation and not the causes and so did

not gain credit. In the strongest responses candidates selected appropriate case studies such as Bangladesh and Nigeria, although many other examples were used to good effect.

Question 2

Fewer candidates chose to answer this question.

- (a) (i) The majority of candidates identified the correct answer, although the CBD was a distractor for some.
- (ii) Most candidates correctly answered this question.
- (iii) Candidates needed to state three different forms of transport, and where candidates referred to three different modes of transport, they gained full marks. Some candidates referred to cars, which are not an appropriate form of transport for industrial purposes.
- (iv) This question differentiated well. In stronger responses candidates considered clear arguments for and against the development, particularly the issues of traffic congestion and also the advantages of shopping facilities in the locality.
- (b) (i) Most candidates used the photograph well to identify at least two of the characteristics of the CBD. Many correctly identified the shops or named services and the fact that the area was crowded or pedestrianised. Common errors were to suggest that the area is densely populated, or to refer to businesses generally rather than giving valid examples.
- (ii) This question was less well answered. Many candidates noted that the area was old and the need for renovation, but often did not develop their response further than this. In good responses candidates developed several ideas, particularly traffic control and the need to attract more visitors or tourists. Vague answers such as to make the area safer or more modern did not gain credit.
- (c) This question discriminated well. Stronger responses clearly described the different types of pollution and explained the source of that pollution. In weaker responses candidates tended to generally identify pollution types, such as air pollution or water pollution but gave limited explanations. For example, the words 'cars' and 'factories' alone did not explain why there was air and water pollution. In order to gain credit candidates needed to refer, for example, to air pollution being caused by emissions from car exhaust fumes and water pollution being caused by effluent from factories.

Question 3

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

- (a) (i) Most candidates correctly identified the magma chamber, some simply stated magma, and so did not gain credit.
- (ii) Many candidates were able to correctly identify the different types of volcano.
- (iii) In stronger responses candidates gave a very full answer clearly comparing the two volcanoes, for example the shield volcano is composed of lava, whilst the strato volcano has both lava and ash layers. Some candidates did not appear to read the scale on the two diagrams, whilst others stated 'one is' and 'the other is' but did not make it clear which volcano they were referring to.
- (iv) This question was well answered. Most candidates clearly described four different benefits of living close to volcanoes.
- (b) (i) This question was also well answered. Candidates understood the question and were able to identify three different types of help that would be needed using the resource. Weaker answers considered the need for money or financial help, which did not gain credit.
- (ii) This was well answered by the majority of candidates with a whole range of ideas, particularly the need for drills, earthquake proof buildings and often developed this idea with detail about how buildings could be reinforced, together with developed ideas about education. In weaker responses

candidates considered prediction techniques, which while valid for volcanoes or tsunamis, are less relevant and reliable for earthquakes and so this idea did not gain credit.

- (c) This question differentiated well, with some excellent answers giving detailed accounts of the processes leading up to the eruptions of named volcanoes, particularly at destructive margins. Some candidates seemed to confuse both constructive and destructive plate margins in their answers or failed to correctly name the plate boundaries for their chosen volcano.

Question 4

This question was answered by a lower proportion of candidates than **Question 3**.

- (a) (i) Whilst many candidates correctly identified the correct instrument there were some errors.
- (ii) Correctly answered by most candidates.
- (iii) Good understanding of weather instruments shown by most candidates here.
- (iv) Most candidates showed a good understanding of the siting of a wind vane, especially for the need for it to be high up. Most also considered the need to be away from trees, and buildings, and the reason for this.
- (b) (i) Many candidates did not answer this well as few could identify the cloud type or accurately estimate the number of oktas. Many however were able to describe the cloud as thin, white or wispy. This skill could be practised by looking out of the classroom window or using cloud images from the internet.
- (ii) Many candidates did not seem to understand the question, with many simply describing cloud types and the weather they bring, rather than focussing on how cloud type and cover can be observed over a period of time. Answers could have included the idea of looking at the clouds by eye or taking photographs and then identifying the cloud types using a chart, book or the internet. Cloud cover can be estimated using oktas to see what proportion of the sky is covered. Cloud type and cover should be checked at the same time each day for the two-month period and comparisons could then be made using a variety of graphs such as pie charts, divided bar graphs or bar graphs.
- (c) This question differentiated well. Most candidates were able to name a river and refer to a range of flood management techniques. However, the answers were often not developed sufficiently to access Level 2 of the mark scheme, as explanation of the flooding management strategies was needed, for example, dams hold back water and release it in a controlled way, or levees increase river capacity. In weaker responses candidates wrote about the effects of floods rather than explaining how floods are managed.

Question 5

This was a popular question and was answered by a slightly larger proportion of candidates than **Question 6**.

- (a) (i) The vast majority of candidates correctly stated the percentage, however there were a whole range of wrong answers.
- (ii) Most candidates correctly named two renewable methods of electricity generation shown on the pie graph, however some incorrectly stated nuclear, or suggested solar power, which is not on the pie graph.
- (iii) This question discriminated well. Most candidates correctly suggested that renewables do not emit carbon or cause air pollution, however only some candidates developed their answer further with ideas such as the importance of reducing reliance on imported fossil fuels, or that renewables do not run out, or have low running costs.
- (iv) This question also discriminated well, and good answers focused on clear advantages and disadvantages. However, many answers were vaguely expressed, such as nuclear is cheaper, more efficient, more expensive or dangerous.

- (b)(i) Many candidates made good use of the map and identified three different problems caused by the building of the dam and HEP station using information such as place names from the map. General statements such as flooding, and air and noise pollution did not gain credit.
- (ii) This question discriminated well and there were some excellent responses. All mark scheme ideas were seen, especially references to the use of the electricity for industrial development and the economic boost from the availability of water and the attraction of the dam to tourists. Some candidates focused on how the dam would benefit people (e.g., more drinking water/electricity in their homes) rather than considering the economy.
- (c) This question discriminated well and there were some excellent responses, with clear explanation of the source of the water and how this was then supplied for domestic use. Some very good case studies were seen which included good locational detail, such as Singapore and the Four Taps.

Question 6

This was a less popular question with a smaller proportion of candidates choosing this question than **Question 5**.

- (a)(i) Most candidates answered this correctly with a clear best fit line. However, some candidates did not answer the question.
- (ii) Most candidates identified the relationship seen on the scatter graph, but relatively few referred to the extent of the relationship. It is clearly a strong positive relationship but there are some exceptions, particularly those countries with a life expectancy lower than 50.
- (iii) Most candidates could explain the link between improving health care and longer life expectancy, but few could identify other aspects of development which extend most lives, such as cleaner water and reliable food supply.
- (iv) Whilst there were some excellent answers, many candidates did not score well on this question. The most common correct response was the idea that HDI, being a composite indicator, looks at a variety of measures rather than just wealth. Few candidates considered other aspects, such as that HDI incorporates education, and also life expectancy, and that the 0 to 1 scale enables comparison between countries.
- (b)(i) Most candidates could accurately state the decline in primary and the rise in tertiary industry, however this was not always supported by accurate statistics.
- (ii) This question discriminated well. A variety of answers was seen, however weaker responses failed to develop their ideas clearly. There was understanding shown of the role of machinery and the impact of education on the employment structure of a country, however many candidates did not develop their answers beyond these simple ideas. Good answers considered the impact of Government investment in certain sectors, the role of importation and also of the impact of demand on employment structure.
- (c) This was a straightforward case study and differentiated well. In the strongest responses candidates selected appropriate case studies such as the melting of the Polar ice-caps and the impact on wildlife habitats, and rising sea levels and flooding risk to areas such as mainland China, Indonesia and Thailand. Weaker answers considered the causes of global warming, or the impacts of deforestation on rainforest habitats, both of which failed to gain credit.

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Paper 0460/21 Paper 21

Key messages

- Paper 2 is a skills paper and candidates are required to analyse the resources within the questions. Candidates sometimes failed to do this and answered based on their knowledge only.
- Basic map work skills relating to grid references, cross sections and map interpretation were areas of weakness.
- Candidates sometimes failed to attempt certain questions, especially those which had to be completed on the data resources provided.

General comments

Responses to the questions ranged from good to weak across the whole paper. The range of marks was from 48 to 6 (out of 60). There were several good scripts which scored 40 marks and over and a much larger number of weak ones which scored fewer than 20 marks. Candidates scored better marks on the short answer questions with many struggling with the extended responses. Almost all candidates were able to complete the paper in the allotted time.

Question 1

- (a) Most candidates scored full marks in this section and made careful reference to the map key. The few errors that were made were usually in **part (iii)** where *rock escarpment* was the correct answer. Where multiple answers were given, no mark was awarded.
- (b) Many candidates found this section difficult. Various inaccurate answers were offered in **part (i)** where the correct answer was *cart track* or *footpath*. Most candidates correctly plotted and labelled the position of Puy Gerbel in **part (ii)** but many did not attempt to complete the cross-section in **part (iii)**. A small number gained both marks by starting the line between 1400 m and 1500 m and drawing a single valley to connect with the printed line.
- (c) Few answers gained more than two marks (out of four) in this section. Most described the locations of the areas where woodland is found but few related the locations to the relief. The best answers noted that woodland tended to be on steep slopes and on the valley sides but rarely on the valley floors or summits. Some candidates wrote at length about the different types of woodland found but this was not relevant and did not gain credit. In describing a distribution such as this, candidates should remember to use compass directions and not refer to left and right.
- (d) There were mixed responses in this section. In **part (i)** many errors were made with the sixth digit; around half of the candidates correctly gave 826842 or 827842. In **part (ii)** most candidates correctly counted 3 or 4 bridges. In **part (iii)** there were some good, accurate responses with answers in the range of 80 – 86 ° being awarded the mark. In **part (iv)** many candidates gained a mark for describing the directions in which the road travels between Lustrande and la Griffoul. Few recognised that the road tries to *keep as level as possible*, or that it *rises from 900 m (approximately) to 1229 m*. Few candidates identified the *sharp or hairpin bends* and very few candidates attempted to explain why the route follows the path that it does.

Question 2

- (a) In **part (i)** most candidates correctly calculated the population density and understood the meaning of the term. Almost all candidates who attempted **part (ii)** correctly drew vertical lines as in the key. A significant number did not attempt it.

- (b) Candidates found **part (i)** difficult, and few scored two or more marks. In order to gain credit, they needed to use **Figs. 2.1 and 2.2** only to consider the relationships between the two maps and then describe where (using compass directions or place names) severe drought is likely to affect the population, given the variations in densities. Many answers did not address these points and merely described how severe drought might affect and upset the population of the area in general.

In **part (ii)** some candidates suggested relevant factors such as *steep slopes*, *lack of jobs* and *food shortages* and many other acceptable suggestions. Ideas were not credited if they were too general and did not apply specifically to the low population density areas of southern Pakistan, such as *relief*, *jobs* or *food supply*. In addition, responses suggesting for example, better healthcare or more jobs in the cities did not score as these did not refer to the areas of low density.

Question 3

- (a) Few candidates were able to state *central business district* as the urban zone shown in **Fig. 3.1**. Many however were able to state at least two characteristics of the zone shown including the *many shops*, *high pedestrian flow* and *pedestrianised* nature of the area. Some candidates failed to look more generally at the photograph rather than looking too specifically at the individual signs and people shown.
- (b) Many candidates did not focus sufficiently on the photograph (**Fig. 3.2**) and gave rather general ideas in their answers which often could not actually be seen and therefore did not score. Amongst the acceptable answers, the *main road giving good access*, the *parking area* and the *landscaped open areas* could be used to suggest why people may prefer to shop in this area.

Question 4

- (a) In **part (i)** almost all candidates correctly stated South Africa. In **part (ii)** most candidates gave an answer within the accepted range of 390 – 410 km to score the mark. In **part (iii)** very few candidates correctly stated that the Vaal River flowed to the south-west.
- (b) In **part (i)** most candidates correctly extracted either *highland area* or *high rainfall* from **Fig. 4.2**. In **part (ii)** where candidates read the question carefully, they were usually able to suggest acceptable advantages and disadvantages of the dam for local farmers and their families. Most commonly, *water supply for domestic use and for animals or irrigation* as well as *the availability of power* were given as advantages. Disadvantages included *the loss of farming land*, *flooded villages during construction* and *the loss of income*.

Question 5

- (a) (i) Most candidates attempted this part but very few correctly identified the type of graph in **Fig. 5.1** as a wind rose or radial diagram. In **part (ii)** most candidates were able to interpret the diagram and gave the correct answer of 4 days. In **part (iii)** most candidates correctly identified the direction as WSW.
- (b) Many candidates scored both marks for *humidity* and *temperature*.
- (c) Candidates often failed to read the data on the thermometer in **Fig. 5.3** correctly. Many stated 7 °C correctly in **part (i)** but only a minority correctly stated 15 °C in **part (ii)** or –10 °C in **part (iii)**.

Question 6

- (a) Almost all candidates did not know what all three development indicators were and the majority scored one or two marks.
- (b) In **part (i)** most candidates were able to complete the graph (**Fig. 6.1**) correctly. The plotted points were not always clear and precise as some failed to score when the points were very large or inaccurate. In **part (ii)** candidates found it difficult to compare the change over time between the USA and Greece. The best answers split the graph into significant time periods and made comparisons, such as *between 1975 and 1990 both countries grew at a similar rate*. Marks could also be gained for the general picture, such as *both countries increased overall*, and *Greece had a greater overall increase*. In **part (iii)** a significant number of candidates did not appreciate that this

part required reasons why the HDI might vary **within** a country. Answers such as variations in natural resources, climate and medical facilities in different regions all gained credit, but unfortunately did not score if the candidate was comparing countries.

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Paper 0460/22 Paper 22

Key messages

- Page 21 of the syllabus states that 'Candidates should be able to interpret, construct or complete a cross-section'. Many candidates were not proficient at this skill.
- Questions frequently refer to natural/physical features and human/economic features. Candidates should be aware of the meaning of these terms.
- Questions often require candidates to describe distributions, for example of population. They might do this by referring to compass directions or by relating the distribution to other geographical features such as relief, rivers, transport routes or boundaries.
- **Questions 1(f)** and **3(a)** gave instructions about what candidates should **not** include in their answers. These instructions were frequently ignored, perhaps indicating a lack of attention to the questions.

General comments

Generally, candidates performed equally well across all six questions on the paper. Occasionally candidates gave weak answers to the physical geography **Questions 4** and **5**, although other candidates gave strong answers to these questions.

Question 1

- (a) Candidates were able to score high marks on this section, showing good skills of finding features on the map and identifying them using the key. Feature **A** was a *railway*, the type of road at **B** was *regional* (Examiners also allowed *main* as the colours in the key were very similar), the height above sea level of the spot height at **C** was *25 m*, **D** was a *hospital* and the land use at **E** was *moor*.
- (b) The response to the six-figure grid reference was very mixed with the correct response being *004802*.
- (c) Most candidates were able to identify two services provided for tourists within 1 km of Ste-Anne-d'Auray from *tourist information centre*, *campsite*, *place of interest*, *hiking route* and *notable monument*. The riding centre was clearly more than 1 km away.
- (d) Although there were many correct answers, some candidates found the distance measurement difficult, the correct response being *2650 m*. Candidates generally gave the correct compass bearing (*southeast*) but found it more difficult to give the corresponding bearing of approximately *127 – 130°*.
- (e) The cross-section question proved difficult for many candidates, with significant numbers omitting the question. Others seemed to have failed to locate the line of section correctly on the map. The feature at **X** was a *road*, the feature at **Y** was a *river* and when completing the cross-section, the land should have been shown rising to the west to between *25 and 40 m*.
- (f) There were many, very good answers with candidates often referring to *the flows to the south*, *variable width*, *meanders*, *tributaries*, *tidal mud flats*, *the sections of the valley with steep sides*, *flood plain* and *V shaped profile*. Despite the instruction in the question not to refer to land use, many candidates did just this and discussed the settlement, vegetation and roads.

Question 2

- (a) Most candidates were able to correctly identify the type of graph most suitable to show the information in Table 2.1. Answers were equally split between *bar graph* and *pie graph*. Examiners did not accept 'cake graph'.
- (b) Candidates were also successful in identifying the province with most people arriving and leaving as *Gauteng* and calculating the net migration of Northern Cape province as 5670.
- (c) When describing the distribution of provinces with a GDP per capita between US\$ 0 and 6 000, many candidates were able to score full marks by noting the concentration *on the coast* and *borders* and the concentration in the *northeast* and *southeast*. Others failed to interpret the word 'distribution' correctly and wrote irrelevant answers.
- (d) This was generally well answered with candidates noting that the provinces with high GDPs tended to have positive net migration and those with low GDPs had negative net migration. This was expressed in a variety of ways, all of which were given credit. Candidates also illustrated their answers by quoting relevant provinces. Some candidates quoted lists of figures from Table 2.2 and Fig. 2.1 but offered little interpretation.

Question 3

- (a) When describing the changes in urban population shown on Fig. 3.1 many candidates were able to score full marks by noting the increase in all three categories of country, the large increases in both low- and middle-income countries and the small increase in high income countries. Others ignored the word 'changes' in the question and described the differences between the countries. Others attempted to describe changes in income, not changes in urban population, and failed to gain any credit.
- (b) Candidates were required to give evidence from Figs. 3.2 and 3.3 which showed that urban sprawl was taking place. A variety of different evidence was quoted. From Fig. 3.2 candidates noted the *construction site*, *unused areas for development*, *main road*, *sports ground*, *golf course*, *residential areas* and *low-rise developments*. From Fig. 3.3 they noted the *informal settlement* (using a variety of terms), the *dirt roads* and the *newer development on the right*.

Question 4

- (a) Most candidates were able to correctly locate the earthquake epicentre within the intensity 8 area and to draw a line separating the intensity 3 areas from the intensity 4 areas. When describing the effects of the earthquake in Sydney, most candidates quoted the three intensity 6 effects from Table 4.1. Others quoted lower intensity effects which were relevant. However, others spoiled their answers by quoting intensity 7 or 8 effects.
- (b) Most candidates were able to note that the position of the Newcastle earthquake was unusual in that it was not on a plate boundary.
- (c) Some candidates produced clear explanations as to why earthquakes occur at destructive boundaries by describing a sequence of events involving *compression*, *subduction of oceanic plate*, *friction*, *build up of energy* and *faulting*. Others appeared to have little idea of these processes while others wrote about volcanoes.

Question 5

- (a) Most candidates were able to name the Stevenson screen.
- (b) Explanations of the features of the Stevenson screen were generally very good, including noting the avoidance of heat radiation from the ground in **part (iii)**.
- (c) Labelling of the alcohol and mercury on the Six's thermometer was variable. Large numbers of candidates scored both marks, but others reversed the labels, while others drew ambiguous arrows which pointed to the alcohol-mercury boundaries.

- (d) Many candidates found it difficult to read the Six's thermometer. They frequently read from the wrong ends of the indices, and it was also common for the units (°C) to be omitted.

Question 6

- (a) This question required candidates to analyse Figs. 6.2, 6.3 and 6.4 and give evidence that the north of Italy was, or was not, more developed than the south. Candidates found it easy to give evidence about GDP per capita from Fig. 6.2. They noted the greater wealth production in the north and illustrated this with relevant GDP figures. From Fig. 3.3, most were able to note the greater concentration of industrial centres in the north. Many quoted figures, although these were not always correct, perhaps because they did not note the definitions of north and south shown on Fig. 6.1. Life expectancy from Fig. 6.4 was the least well answered part of the question. Many candidates attempted to give evidence that life expectancy was greater in either the north or the south but relatively few noted that there was little difference between north and south. Some candidates who had a knowledge of Italy attempted to give reasons for the differences between north and south, but this was not required by the question.
- (b) Examiners accepted a very wide range of reasons for differences in development between the regions of the country. These included: physical reasons such as *relief, natural disasters, natural resources, climate, soil and accessibility*; and human and economic reasons such as *medical facilities, wealth and investment, level of education and skills, war and conflict, government focus and migration*. The response from candidates was variable. Some candidates attempted to answer with reference to Italy which was not required.

GEOGRAPHY

Paper 0460/23
Paper 23

Key messages

- Candidates frequently omitted questions which involved completing graphs etc. They should look carefully when marks are allocated but there are no lines to write the answer.
- Candidates should pay attention to the command words which are listed in the syllabus.
- Paper 23 is a skills paper and candidates should make full use of the data provided, rather than using facts learned by rote.

General comments

No single question stood out as particularly hard or easy overall. The more confident response were seen in parts of **Question 1(a)**, **Question 4(a)(ii)** and **Question 6(b)(i)**; while **Question 1(d)(i)**, **Question 1(e)**, **Question 3(b)(ii)**, **Question 4(a)(iv)** and **Question 4(b)(ii)** proved to be more challenging. **Question 4(b)(ii)** also had the highest omission rate, though the completions of the figures in **Question 1(b)(i)**, **Question 2(a)(ii)** and **Question 6(a)(i)** also had a high number of omissions.

Generally, candidates showed a good grasp of the techniques necessary to interpret and analyse data and were competent in handling the variety of ways in which it was presented to them.

Question 1

- (a) Candidates were very successful in identifying the features shown on Fig. 1.1. Feature **A** was a *church*, and most candidates correctly selected this response from the line of information in the key. A few put cemetery, and this could have been due to misinterpreting the symbol. Feature **B** was a *place of interest*. Feature **C** was a *road*, and a variety of alternatives were acceptable here, due to the layout of the key, thus, *main road*, *secondary road* and *other road* were also valid, along with *D135*. However, the route was clearly not a dual carriageway, or other narrow road or a road under construction. The hazard at **D** was an *area liable to flooding*. The height above sea level of the triangulation station at **E** was *1081 metres*. This was relatively easy to pinpoint, being close to the edge of the map and in a relatively uncluttered area.
- (b) Fig. 1.2 was a cross-section along easting 65, and candidates were asked to use labelled arrows to show the position of the D680 road and the river Maronne. Candidates often got both right or neither. The latter were sometimes just inaccurate, but some reversed the cross-section as south to north. Unfortunately, a few had failed to label their arrows. **Part (ii)** asked candidates to complete the cross-section. A curve rising and then falling gave them 1 mark and if the summit was located between 1250 – 1280 metres, they got the second mark. While some showed evidence of construction, this was not necessary, so a variety of curves were able to score the marks.
- (c) Fig. 1.3 focused in on just two squares and candidates were asked to complete a table to compare the features in those squares. Neither area had a river flowing from south to north, nor a plateau, while both had steep slopes and land above 1300 metres. Only area B had south-facing slopes. Most candidates scored some marks but very few got all 5. Errors were often on the second or third lines, where candidates had found the feature in one area, but missed it in the other.
- (d) In **part (d)(i)** candidates were asked to measure the distance along the zig-zag road descending the mountain. A generous tolerance of 3 000 – 3 350 metres was allowed, due to the difficulty of the tight bends and some candidates were in this range. A few were just short, while others were significantly short due to taking the straight-line distance. Candidates then had to measure the bearing for the same two end points. Again, there was a generous tolerance, to allow for a variety

of interpretations of the location of the refuge hut, with 165 – 170° being accepted. Consequently, answers were either within this range or completely wrong, usually as a result of taking the bearing anticlockwise or measuring from the wrong end.

- (e) The mapwork question ended with a piece of extended writing. Candidates were asked to describe the site and suggest reasons for the growth of St-Paul-de-Salers. The typical score on this section was 2, usually for pointing out the *river for water supply* and the *place of interest or monument for tourism*. Many mentioned other features, such as the roads and the woodland, but did not go into enough detail about the significance of these. They could have mentioned the *bridging point* or the *road junction* and commented on the availability of *wood for construction or fuel*. A few described the site as being *low*, in a valley, but rarely did they comment on the NW facing slope putting the settlement *above the river floodplain*. There was a *quarry* nearby, a potential source of building materials, while the high number of churches could have been interpreted as a *religious centre*.

Question 2

- (a) Fig. 2.1 showed a population pyramid for Pakistan in 1998 and the projection for 2025. Candidates were first asked to read the 1998 pyramid and give the percentage of females aged 0 – 4. A considerable number of candidates answered incorrectly with 7.5 per cent, instead of 7.6. Most candidates scored the mark for the completion of the pyramid.

Candidates then had to describe the main changes in proportion in the three sections of the pyramids. Most noticed that the young dependents had *decreased*, while the old dependents had *increased*. The working population too had *increased*; however, this was not easy to see at a glance.

- (b) Table 2.1 gave population information for 1998 and candidates were asked to calculate the total population aged 65 and above. The majority had a correct answer of 4,570,300.

Candidates were then asked to suggest a benefit and a problem caused by the change in proportion of old dependents. They generally did better with the problems section, mentioning *pressure on the health services*, or *financial issues for the family or the government*. Benefits, such as *looking after grandchildren* and *wisdom and experience of the older generation*, were not cited so often.

Question 3

- (a) Fig. 3.1 was a sketch map of a beach, with groynes and a sea wall. Candidates were asked to suggest why groynes had been built along the coast. Many wrote about the need to *stop erosion* or to *prevent longshore drift thereby keeping the beach*. A few thought it was to protect the sea wall. In **part (ii)**, the prevailing wind was from the *south-west* but many wrote north-east. Sand was moving along the beach *to the east*, but many candidates answered north-east, the direction of the swash.

- (b) Table 3.1 referred to an area further along the coast and gave data for the distance of a hotel from an eroding cliff edge. Most candidates correctly calculated that *20 metres* of coast had been lost between 1989 and 2019. In **part (ii)** the average rate of erosion was *0.6 – 0.7* but many candidates saw the word ‘average’ and simply added the raw data before dividing by 4, rather than using the 20 metres calculated in **part (i)** and the 30-year range covered in the table. Several different graphs could be used to show the data from Table 3.1, with *bar*, *line* and *scatter* most frequently given.

In **part (iv)**, candidates were told that a sea wall was planned to protect the coastline and the hotel. They were asked to suggest why some people might disagree with the development. Most common correct answers were comments on the *expense* and the *visual impact* of an ugly man-made structure, *destroying beach habitats* and *limiting access*. Very few commented on the possible *effects further down the coast*.

Question 4

- (a) In **part (i)** candidates had to calculate the temperature range in June, which was 8°C. Most had the correct answer, though a few had simply written the calculation without the answer. **Part (ii)**



involved estimating the total annual rainfall and four options were provided to select from. The correct answer was *2300 mm* and most gave this.

To explain why humidity is always high in equatorial areas, candidates needed to refer to the *high temperatures* and *high rainfall*. Candidates usually scored at least 1 mark.

Candidates found it difficult to explain their answer in **part (iv)**. September had a high temperature due to the *overhead sun* or the *high angle of the sun*. The proximity of the sun was not given credit.

- (b) In **part (b)(i)**, candidates were asked how far they would agree with the statement, 'Manaus only has one season'. There were two marks available, and answers needed to consider both temperature and rainfall. They should have concluded that *temperature is always high*, which does agree with the statement, but that *rainfall varies*. Some misinterpreted the gap between the two temperature lines as representing a very variable temperature and some made vague statements such as 'summer all year', without sufficient explanation. Candidates did not always comment on rainfall, but those who did usually scored the mark.

The type of rainfall occurring in equatorial regions was *convectional rainfall*, but few candidates scored the mark.

Question 5

The photographs showed different types of farming and candidates were asked to describe the farming, including mention of both human and natural inputs.

Fig. 5.1 was *intensive, pastoral, commercial* farming, with a *large number* of chickens being kept under a *ventilated* shelter, lit by *artificial lights*. Typically, candidates mentioned the animals and their food, but having considered inputs, then went on to mention processes and outputs, which was not necessary.

Fig. 5.2 showed *large scale, commercial, arable* farming, with at least *two crops* being grown in an area of *gently sloping land*. *Seeds* would be an input and there was evidence of the use of *machinery*, with the parallel tracks running through the crop. Candidates typically mentioned the commercial crop but again often included processes.

There were some excellent answers, scoring 8, but a score of around 5 was more typical. A few had pastoral and arable confused, while others had the same issue with intensive and extensive.

Question 6

- (a) When completing the pie chart for mammals most candidates did this correctly. Shading was usually correct. They then had to compare the level of threat to birds and coniferous trees. Conifers were *more endangered*, with *more nearing extinction* and *less safe*. Many scored both marks, but some still used statistics, even though the question specifically told them not to.

- (b) Fig. 6.2 was a newspaper article about the impact of global warming and **part (i)** was a straightforward question. The dodo became extinct in *1681*, which was the only date in Fig. 6.2.

Candidates then had to use Fig. 6.2 to identify one cause of the extinction of species other than global warming. Many picked one of the first two in the article: *increase in human population* or *reduction in habitats*, but *air pollution*, *water pollution*, *overfishing* and *plastic pollution* were also valid. Some did not score as they suggested causes not mentioned on Fig. 6.2, notably deforestation or hunting and a few simply put human population without mentioning the increase.

- (c) Finally, candidates were asked to explain how global warming could make the extinction crisis worse in the future. Many wrote about *melting polar ice causing rising sea levels and resulting in habitat loss*. Other ideas were seen less often but included *changing seasons or rainfall*, *disruption to food chains or migration*, *problems for temperature sensitive organisms and their failure to adapt*, *reduced oxygen in sea water* and *wildfires*. Candidates typically scored 2 marks.

GEOGRAPHY

Paper 0460/03 Coursework

Key messages

This report refers to the performance of centres in the November 2021 examination, however, the comments made here are equally applicable for centres that make their entries for the first time in 2022.

The original entry for the November 2021 session was slightly reduced compared with the IGCSE Geography Coursework Paper in November 2020. However, this number declined markedly due to the COVID-19 pandemic across the entire world, with one large centre withdrawing at quite a late stage. None of the centres opted for 0976 03 rather than 0460 03 paper.

Nearly all candidates clearly followed the Route to Geographical Enquiry and once again the quality of coursework submissions from most established centres continues to improve. The Moderators were impressed by the way some centres were able to adjust to the increased constraints imposed by the COVID-19 Pandemic. However, it was felt, that some centres could turn it to their advantage, for instance comparing numbers or origin of tourists at the present with data collected by previous cohorts of candidates before the COVID-19 Pandemic restricted movement of people. Certainly, for those unable to undertake fieldwork excursions at present, to retain the topic and use past data has been extremely important. It was felt that the level of understanding shown by candidates who were unable to collect data themselves was relatively undiminished.

It is worth reiterating here that given the ongoing situation with COVID19 we do recognise at CIE that it might be difficult to collect primary data at present. With this in mind, if you are unable to undertake your planned fieldwork visit, CIE would be happy for the data collected in past years to be treated as primary data. Candidates can write up the data collection section as if they had conducted the fieldwork themselves.

It is 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. These are the main vehicle for feedback to centres, particularly since the Outline Proposal service has been phased out by CIE for coursework submissions after November 2021. It cannot be stressed enough how important it is for new centres to read thoroughly the guidance given on the CIE website, especially with regard to the necessity to collect primary data. It is important that enough primary data is collected to allow candidates to exhibit a depth of understanding in their analysis.

Furthermore, it is expected that data is collected in groups. This is then collated by a teacher and redistributed to the candidates for them to work on their individual hypotheses. For safety reasons CIE does not recommend that candidates collect data on their own. 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.

Please note that CIE 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 make sure that coursework based on different topics are of equal value in giving the opportunity for candidates to achieve their potential.

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 in order to access the higher grades. Where there were problems, it usually stemmed from centres whose staff had not received training on how to run and/or mark the coursework option. There is training available online for teachers who are new to the coursework option. There is also the Coursework Handbook available from CIE which includes examples of

coursework which are annotated to show how they should be marked. Face to face training courses at present have unfortunately been extremely curtailed, owing to the COVID-19 Pandemic.

General comments

Coursework submissions on Human Geography topics outnumbered those on Physical Geography and this may reflect that it was easier during the Pandemic for some centres to collect data online, for instance using questionnaires. There was, nevertheless, a wide range of topics from across the globe for example the rejuvenation of Kampong Glam in Singapore, the impact of diamond mining in Botswana and the downstream variation in river characteristics on the Isle of Man in the UK. There was no evidence that candidates did better on one or the other, or when they used past data (due to the COVID-19 Pandemic), instead of being able to go out into the field themselves.

Coursework submissions were generally well focused and most, but not all, achieved a good balance between the five sections of their studies. Background information was usually appropriate in content, but some tended to be disproportionately long compared to the analysis and conclusion. The evaluation for instance, could have been more detailed, especially with the inevitable hinderances posed by COVID-19. Those candidates who based their studies solely on secondary information from the internet, only made a cursory attempt to follow the Route to Geographical Enquiry, and thus, severely restricted the marks they could score.

It was pleasing to see that most candidates adhered to the word limit. Having written approximately 2 000 words, there was no correlation between the number of extra words written, and the final mark that was achieved. The few that were overlength tended to lose focus on the aims of the study. It is recommended that candidates declare the number of words written (including those in tables) in order for them to focus on this issue.

Studies were generally well organised and most included an index of contents, page numbering and bibliography. Most provided sound background knowledge on their chosen topic and demonstrated a clear level of understanding of the concepts involved. Although much of the teaching for many centres took place online, there was very limited evidence to indicate that candidates had little idea of the purpose of their data collection. However, theory quoted in the introduction to the topic was not always referred to again especially in the conclusion. This was particularly relevant for the Butler Model for candidates whose topic of study was tourism related.

The description of the data collection exercise was generally well done, but in certain areas there could have been a little more detail especially regarding sampling strategies and the selection of sites. On the other hand, for many candidates the 'organisation and presentation' was the strongest part of their study with a range of both simple and complex techniques deployed effectively. However, some maps were poorly scanned which rendered them of limited use.

The 'analysis' continues to be the weakest section, and although description of the data was often thorough it lacked explanation, or the explanation was rather speculative. Conclusions were often too short, and although most referred specifically to each hypothesis, there was a lack of key data, which prevented access to the higher Level 3 marks. The 'evaluation' varied in quality, but the best examples showed a clear and detailed appreciation of why their data may not have been reliable, how this could have been rectified, and with suggestions for future extension of the study.

In most cases, each study was clearly individual despite the data collection taking place in groups and being coordinated centrally. Individuality is key to achieving the highest marks and centres can help this to be achieved by making sure their candidates:

- research their own background information
- attempt at least one hypothesis which is not attempted by other candidates
- represent their data by graphs and maps and field sketches which are clearly individual
- use their own photographs.

Centres must also ensure that enough numerical data is collected on any one parameter in order that their candidates have enough data to identify trends and anomalies, perform statistical analysis if desired, and account for their findings with reasoned explanation. For instance, at least 50 questionnaires collected by a class of candidates as a whole is considered to be a minimum requirement.

In most cases the scripts were marked very conscientiously with markers applying the *generic mark scheme for coursework assessment*, adding comments to scripts to justify the marks awarded and being involved in an internal moderation when there was more than one marker. In nearly all centres it was applied consistently with the order of candidates remaining unchanged. This made applying adjustments relatively straight forward. While some were negatively adjusted, this was by no means across all the mark distribution and for some centres there was no change. However, there still seems to be a pattern of negative adjustments above 48 marks and positive ones for those below 38. The 'analysis' and the 'conclusion' were often over-marked, while 'organisation and presentation' was under-marked. If a centre had a large adjustment applied, it was because they were relatively new to the moderation process. In such cases it is also difficult for the moderator to see how the mark scheme was applied since there are no comments made on the scripts.

Comments on specific assessment criteria

Since each centre will receive a separate coursework report on their own coursework 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.

The criteria of 'knowledge with understanding' tended to be either assessed appropriately or a little generously. However, markers are reminded that this criterion should be assessed across the whole study and not just in the introduction where much of a candidate's knowledge is often stated. However, new knowledge may be introduced in the analysis to explain trends or anomalies. Similarly, the level of understanding will often manifest itself in the analysis and conclusion where one can judge how well the theory introduced at the beginning has been applied. Relevant comments made by the marker on the script, for example when a theory has been appropriately applied or indeed a well-reasoned account of why it has been dismissed, are very useful in the moderation process.

The better studies tended to introduce the aims and then their hypotheses at the very beginning. It is now well established that only two or three hypotheses should be tested. However, each should be followed by statements which justify the predicted outcomes, usually in the form of geographical theory. In addition, these hypotheses should be clearly linked to the stated aims of the investigation. Too often, candidates just listed their hypotheses after one or two pages of introductory background information. It might be added that those studies which attempted to test 4 or 5 hypotheses almost inevitably ended up with an analysis which was superficial.

The use of geographical terms in an appropriate context is important here, if the candidate is going to demonstrate a high level of understanding. One of the hypotheses should be chosen by the candidate him/herself in order to introduce more individuality into the work. The better studies not only used the hypotheses as a central theme throughout their study but also referred back to the theory in both their analysis and conclusion. Bradshaw's model can be used to good effect here as well as the Butler Model. One centre used this model to demonstrate the concept of rejuvenation of an urban area. Unfortunately, the model rarely features in candidates' analyses or conclusions.

Background information such as historical detail or on climate should be kept to a minimum unless it is likely to have a direct bearing on the study's results. Some candidates display a major part of their background information in the form of diagrams, and this helps to reduce wordage. The temptation to provide extensive detail on mining processes was offset in this way by many of the candidates from one centre. Most of the detail in the latter has only limited relevance to the hypotheses being tested. The same applies to setting the scene and description of the location where data collection is to take place. Well annotated photographs here could well save yet more words. It was good to see that this session was characterised by an absence of glossaries of geographical terms. These are seldom linked to the hypotheses and again use up wordage unnecessarily.

Most candidates included maps in their introduction. This is good practice where it locates the study area to include the sites where data was collected. However, it is important that these maps, whatever the source, have a scale and orientation. Where they are scanned into a space on a particular page, it is important that the detail on the map is still legible. Furthermore, it is expected that these maps are utilized by the candidate, for example using annotations to indicate the relevance of various locations to the study, or by annotated photographs of each site located around the edge. There is still an overreliance on Google Maps (for both maps and satellite images) with little or no customisation to the study location. A few candidates still include

three or four maps at different scales to show the study area at a world, continental, regional scale etc. This is not necessary and generally adds little to the quality of the study.

The Moderators were impressed by candidates who were able to describe their data collection techniques accurately despite having not taken part in the fieldwork data collection due to COVID-19 restrictions. There was no doubt that COVID-19 did disrupt some data collection routines. However, some centres introduced novel ways to sidestep going out into urban areas, for instance, the use of online questionnaires which were collated in the same way as if they had been collected in the field. Some candidates were left to organise online questionnaires in small groups or on their own from home. These were not quite as successful as when they were centrally coordinated. A major weakness was the fact that very little detail emerged regarding the sampling strategy, which needed to be described and justified. Some did suggest that it was their family and friends who had been questioned. In any event, terms such as random, systematic or stratified sampling were almost completely absent which subscribes to the view that methods of sampling tend to be poorly understood by many candidates. In addition, there was very little justification of the selection of the sites for data collection. If the sites for a river study were chosen because these were the only ones that were accessible or the only ones that the teacher deemed as being safe, then this should be stated.

Data from at least 50 questionnaires should have been collected to make a fair sample to analyse, and there was mixed success in achieving this. Some studies would have benefitted from a single copy of the questionnaire integrated into the text rather than being included as part of an appendix or not at all. Some candidates chose to include open questions as a major part of their questionnaire. This was fine to elucidate opinions but left them rather lacking in numerical data which can be more easily derived from closed questions, and which could then have been graphed and discussed in the analysis. Other candidates stated that interviews had taken place, but there was sometimes little evidence of this. Nevertheless, there would be no need to provide lengthy transcriptions of such interviews, just a table of the main points, with some indication of how they contributed to the confirmation or rejection of the hypotheses.

Many centres now encourage their candidates to describe their data collection in the form of tables. It should be made clear that this wordage does count towards the overall word count. Many include some evaluation of each data collection technique; this is best left for the concluding section of each study in order to prevent repetition.

The most successful studies included tables of the data collected. This is vital evidence to show the origin of data used in the production of graphs and are helpful for candidates to pick out trends or highlight anomalies in their analysis. These tables of data should thus be integrated with the presentation and analyses sections and not placed in an appendix at the end of the study. They can then be easily referenced both within the analysis and the conclusion.

The amount of time devoted to data collection by some centres is an issue. Centres that allocated more than half a day to data collection almost inevitably achieved much better results than those who attempted to collect data in one or two hours. Some candidates stated that they were too busy to spend more than two hours on data collection which suggests that they had underestimated the time needed to have a successful outcome to their coursework.

Since CIE advised that numerical data could be utilised from secondary sources such as weather stations or censuses, it was surprising, that this option was not taken up. However, it must be made clear that this does not mean setting candidates a topic in essay format that involves just collecting and synthesising information culled from the internet or textbooks. This type of exercise takes only a cursory note of the *Route to Geographical Enquiry* and thus would gain little credit for organisation and collection of data since the data must be quantitative.

By and large markers assessed the criteria *organisation and collection of data* accurately. This is to be expected since in most cases they are the ones who helped organise the data collection strategies and collated the data, and so can best say whether a candidate's account represents accurately what actually took place and why.

While many assessments were spot on, the criteria *organisation and presentation* did exhibit some variation in marks given by centres compared with the moderated assessment. 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 had not been utilized 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, there were examples of line graphs used for discrete rather than continuous data which 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 is likely to 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, although there should be the inclusion of a utilised map together with scale and orientation if the script is to get to the top of Level 3.

With the exception of the few candidates which did not undertake primary data collection or have access to numerical secondary data, all studies were well organised and clearly followed the *Route to Geographical Enquiry*. Most included an index of contents which was accurately linked to page numbering where it existed. Bibliographies were not always provided, but where they did exist, references were conscientiously recorded. Where information or diagrams is sourced from textbooks or the internet, these should be documented, albeit briefly. Most now integrate their graphs with the analysis, which means that they can focus on each graph in turn to draw out points which can contribute to the eventual confirmation or rejection of each hypothesis.

The skill demonstrated by the majority of candidates to present their data continues to impress. Compound bar graphs, located pie charts, field sketches, radar graphs and detailed land-use maps drawn by hand, were just some of the complex methods used by candidates effectively. It was also good to see some simple techniques like tally charts accompanying tables of data in some studies. However, there is still a reliance on basic, bar, line and pie charts by many. In addition, there were very few worked examples of statistical techniques such as Spearman's Rank Correlation which could have counted as a complex technique.

Where candidates fall down in their presentation is similar year on year and is worth reiterating here. Some need to understand more about how they can make their graphs more effective to convey the data they wish to display. There seemed to be many incomplete bar and line graphs, which having been drawn accurately, lacked axis labelling, particularly on the Y axis. Such labelling should include the name of the parameter along with the units. On some occasions, titles were also missing. Since the majority of graphs are produced by using computer programmes, it is wise that having inputted the data, candidates inspect the results carefully and make any necessary amendments. Where similar graphs are produced by almost all candidates in a centre due to the inputting of similar data, some attempt should be made by the candidate to make them more individual, for instance by annotations to pick out certain trends or anomalies. On some occasions the original data could be manipulated to make the resultant graphs different, for instance by using averages or calculating the mode or standard deviation of certain data sets.

There were some examples of well annotated maps and photographs, for instance, demonstrating how or where the data was collected. However, there were also some without annotations, labels or a title, and which were not even referred to in the text. These served little purpose. Many candidates would also do well to note what is expected by annotations, i.e., clear descriptions of features (not just a label) which are located with an arrow.

For the *analysis* the trend for some centres to overmark at the top end of the mark distribution, is similar to past sessions. While many candidates make detailed descriptions of the trends in their graphs and site key data, some of which may be described as thorough, the presence of reasoned explanations and comment tended to be limited. Those markers who identified and made comments on the scripts where reasoned explanations occurred, were the ones who tended to judge the level for this criterion accurately. Occasionally some candidates at the lower end of the mark distribution were not given enough credit for some detailed description of their data from graphs.

Whilst analyses are improving among some established centres, it still remains the weakest criterion for many candidates. Because graphs are now largely integrated with the text, it does mean that most are referred to in the analysis in the order that they appear. In the best responses these are well related to the hypotheses with the main trends identified, together with anomalies. However, it was felt that these could have been further highlighted by annotations on the graphs. It was noted that the best accounts made copious and accurate references to their data. However, where only a small amount of data was collected, this was clearly not possible. For a river study that measures up to six different parameters at each site, if only 4 or 5 sites are attempted the data on any one parameter, such as velocity, is limited.

The major weakness was in the provision of reasoned explanations for the patterns that had been described. While some candidates did use field observations, creditable secondary data and/or geographical theory to substantiate their findings, for others, explanations were very brief and often speculative or not attempted at all. Phrases such as 'The reason might be/could be/may have been', should be avoided when attempting an explanation. Few candidates made use of statistical techniques such as Spearman's Rank Correlation in

their analysis which could provide further evidence to substantiate or reject their hypotheses. Overall, it was a depth of discussion, albeit succinct, which reveals a higher level of understanding which was often lacking.

It must be reiterated that where no primary data is collected and the study relies totally on synthesis of existing information from the internet or textbooks rather than numerical data such as climatic data, this made an analysis impossible and so no marks can be credited for this criterion.

The *conclusion and evaluation* were marked accurately apart from the highest scoring studies. Here too much credit was given for accounts which lacked key data. The generic mark scheme for coursework assessment states that to attain Level 3 there should be 'clear conclusions in the light of the aims, clearly related to the evidence collected'. Whilst each hypothesis tended to be confirmed or rejected with some candidates summarising their findings quite clearly, for many, explanations were often superficial and not related to the evidence collected. The evidence should be either examples of numerical data or stated characteristics shown on graphs, maps and tables which are clearly referenced; for example, 'On Fig. 5 it can be seen that'. Very few candidates referred back to the theory outlined in the introduction, such as the Butler Model. Interestingly, very few candidates suggest that a particular hypothesis was partially true; it was almost as if any hypothesis proposed is expected to be wholly true or false. In general, although it is quality not quantity that is required, some conclusions were too short. Whilst some concluding statements in each section of the analysis can be considered, a separate section entitled 'conclusion' is expected. This also applies to the evaluation which should be part of the conclusion, rather than statements which are often part of a methodology table.

The evaluations were variable in quality. The best evaluations were able to make clear statements regarding both positive and negative factors about the study and made some appropriate suggestions on how the study could have been improved. As in June 2021, those candidates who were not able to undertake data collection but used past data, should be commended for their insight, considering that they were not actually present. Nevertheless, it was felt that many candidates did not make enough of the difficulties in collecting data as a result of the COVID 19 Pandemic. Discussion on the sampling procedures employed when undertaking a questionnaire, were largely absent. Weaker responses where candidates collected a limited amount of data, rarely made points which indicated how reliable their data was. Furthermore, some commented that they could not afford more time. Such responses tended to give generic improvements such as 'visit more sites' or 'collect more data'.

Administration

All centres got their coursework sample submissions to CIE on time, with the appropriate paperwork completed accurately. The latter consisted of the *candidate summary assessment form* together with the *MS1* or the *internally assessed marks report*. Please make sure that an *individual candidate record card* is attached to the front of each script and not sent in the overall package in one pile. Candidates were listed in candidate order on the *coursework assessment summary form*, which also helped moderation.

All coursework samples were a good representation of the centre's mark distribution, and included both the highest and lowest scoring candidates. Please continue to double check the paperwork to make sure there are no mathematical errors either in the addition of marks on the *coursework assessment summary form* or in the transcription of marks to the *MS1*'s. This session no such errors were discovered.

The hard work of the markers was very much appreciated by the moderators and in particular the comments made on scripts to justify the marks awarded. These facilitated the smooth running of the moderation process. If your centre has not done so, it would be very much appreciated if markers make these comments (in pencil) on the scripts for your next submission.

Where a centre has more than one marker it is essential that an internal moderation takes place. There have been occasions when one marker's marks from a centre has differed markedly in standard from the remainder of the markers and an internal moderation is the best way to resolve this issue.

There is evidence that an internal moderation has been carried out by most centres, and marks changed accordingly. However, please make sure that any changes are reflected not only in the total mark awarded out of 60, but also in changes to the marks for the individual criteria, which are written on the *individual candidate record card*. This information is essential for the moderator's job to be carried out effectively.

GEOGRAPHY

Paper 0460/41 Alternative to Coursework
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Key messages

Every examination is different but there are usually a few generic tips and key messages that need making that should improve future candidate's performance. Most of these have featured in previous reports but the same or similar issues do tend to reoccur. Examiners feel that addressing these points will benefit future candidates:

- 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.
- 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. 1.5 and Table 1.2*.
- Attempt all completion tasks on graphs, tables, or diagrams – not all the answers required are on lines and in writing. Many candidates miss out on relatively easy marks by not attempting these questions.
- Consider the marks awarded. Candidates should avoid writing outside of the lines provided so e.g., do not write a paragraph when only two lines are provided as this wastes time.
- If you must write more than the lines allocated indicate this with a phrase such as (*continued on additional page*). This is very helpful to the Examiner in finding your answers.
- When completing graph work use a dark-coloured pencil or pen as scripts are scanned for marking and light colours do not always show up. Always shade bar graphs and pie charts accurately.
- When you think you have finished, check that you have not missed a question out. Some questions may not stand out if they are on pages with a lot of graphs or maps. Make sure you have answered the questions on every page. This applies specially to questions where you are asked to complete tables, diagrams, graphs, or maps.

General comments

Most candidates found this examination enabled them to demonstrate what they knew, understood, and could do. The overall range of marks went from 0 to 50 out of 60 – slightly lower than previous years – with weaker scripts scoring on the practical questions, such as drawing and interpreting graphs and tables, and stronger scripts scoring well on the more challenging sections requiring explanation and judgement especially regarding hypotheses. Most candidates answered **Question 1** more successfully than **Question 2**, which proved to be difficult for many.

As all questions need to be answered on this paper, it is difficult to not follow the rubric correctly, although some candidates do omit graph completion questions which are usually quite straightforward to answer. This is an on-going concern from year to year.

There were no significant reports of time issues. Some candidates tend to write too much in some sub-sections, as such they should be encouraged to answer more succinctly and perhaps give more thought to what they need to write prior to writing their answer. Most points for teachers to bear in mind, when preparing candidates for future Paper 41 questions relate to candidates 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(g)** where some candidates described features of the two methods rather than describing differences between them. **Question 1(c)(i)** required candidates to suggest possible weaknesses in the fieldwork methodology, this type of question, or similar suggesting improvements, is frequently included on this paper and is an area which can be practised with candidates in school. However, developing a series of generic improvements which may apply to all fieldwork should be avoided, as such suggestions tend to be vague and may not gain any credit.

Even though this is an Alternative to Coursework examination, candidates will still be expected to show that they know how fieldwork equipment is used and understand appropriate fieldwork techniques even if they have only limited opportunity for fieldwork within the centre. For example, **Questions 2(b)(i), 2(c)(i), and 2(d)(ii)** focused on specific equipment and techniques commonly used in fieldwork. Centres are encouraged to carry out basic fieldwork with candidates, especially using simple techniques which can be done on the school site or in the local area.

Comments on specific questions

Question 1

- (a) Ideas such as 'it is an area of illegally built homes' or 'an area of self-built housing' were acceptable, but ideas such as 'an area of low-quality housing' or 'an area of poverty' did not gain any credit. Many responses seen showed difficulty in giving a succinct description of a squatter settlement.
- (b)(i) Most answers provided the correct distance having used the scale on the map.
- (ii) This question discriminated well. Many responses scored two marks by linking the distribution to rivers and roads or specific directions from the city. Weaker responses tended to be vague e.g., stating 'north' rather than 'north from the city or CBD', they also included vague terms such as 'scattered' or 'uneven'.
- (iii) Responses needed to explain that squatter settlements grew up 'next to a road in order to get access to the city centre or the workplace'. Similarly, that settlements grew up 'along a river to use the water for washing'. Some answers suggested that the settlements grew up near woodland or parkland, but these were not acceptable answers. Many answers failed to score marks because they did not explain the factors they identified.
- (c)(i) Successful answers referred to reasons such as a sample being too small to be representative or reliable, and too big to be manageable by taking too long to do or giving too many responses to be able to analyse them. Weaker answers gave vague ideas such as 'too big' or 'too small' without explaining why.

- (ii) The questionnaire was completed correctly by most candidates. The most common error was choosing the wrong answer for **Question 3** 'Where do you get your electricity supply?'
- (d)(i) Most candidates drew the bar accurately. An error made by some was to misread the scale and draw the bar to 22 per cent.
- (ii) Some candidates found drawing the horizontal bar difficult. Incorrect answers were often drawn to 44 per cent.
- (iii) Most candidates used the information in the table to compare features of the two squatter settlements, either by referring to settlement A or settlement B, or identifying the difference between the two settlements. Weaker answers had ignored the instruction not to use data and gave statistics with no attempt at comparison.
- (e)(i) Most candidates who attempted the question completed the divided bar graph accurately. However, 8 per cent of candidates did not attempt this question.
- (ii) Most responses provided the correct conclusions to the hypothesis for both settlements. Also, the majority of responses supported their decisions with appropriate data about formal or informal jobs.
- (f)(i) Most responses correctly identified that 32 per cent had a fear of being evicted.
- (ii) The question discriminated well. Most answers identified that services were the main concern for residents. However, weaker responses did not explain the reasons in sufficient detail or with enough precision. Ideas were copied from the graph such as 'lack of electricity' but did not explain why this was a concern such as 'so they could not cook or work'. Also, some answers referred to disease or poor health but did not link them to the specific problems on the graph.
- (iii) As in the previous question the quality of answers varied here. Most responses correctly identified that environmental problems were the least cause of concern but failed to explain in detail the reasons why. The most common answer which gained credit was the idea that these problems were not immediate, or that residents had more urgent problems to deal with such as the threat of eviction.
- (g) Good answers used the information well to give two clear differences. They usually referred to building materials by comparing bricks with other materials, or the attitude of the city authorities towards the squatter settlements. Weaker answers referred to one method on each of the numbered lines 1 and 2 without always making a comparison. However, if the two points were a valid comparison, the candidates scored one mark.

Question 2

- (a) Answers varied in quality and relevance. Stronger responses suggested various precautions to ensure safety, such as 'working in groups', 'taking a mobile phone in case of difficulty', and 'not going into the sea', which was not needed to do fieldwork on the beach. Weaker answers included vague ideas such as 'wear suitable clothes' or 'check the weather'.
- (b)(i) It appeared that many candidates were unfamiliar with a quadrat as they did not use the photograph, or the information supplied in the question fully to describe a suitable method. Ideas such as 'the photograph shows a quadrat placed on the beach' would have scored one mark. Also, 'the quadrat is divided into 100 squares' which should have provided a clue about how to estimate percentages which are referred to in the question, for example by counting the number of squares containing each type of beach material.
- (ii) Many responses suggested a problem of classifying beach material. A common answer was that a beach contains other material which could occupy the quadrat but would not fit into the suggested classification.
- (iii) The pie graph was accurately completed by most candidates, but 6 per cent of candidates did not attempt the question. Weak responses usually plotted the segments in the wrong order and potentially only scored one mark if the shading was appropriate. There were 5 other pie graphs included which served as illustration and should have provided some help for candidates.

- (iv) The question differentiated well. Many responses made the correct conclusion that the hypothesis was false. Stronger responses also explained that the main evidence was that there was more change in beach material at beach X and gave valid statistics which showed the change in one type of beach material, e.g., 'sand, away from the sea on both beaches'. The use of data varied in relevance within answers.
- (v) Some candidates did plot the data accurately using the results which were already plotted as a guide. Other candidates who were not familiar with the technique incorrectly plotted the percentages on the three different axes. The question was not attempted by 22 per cent of candidates which suggests that they were not familiar with the triangular graph plotting technique.
- (c) (i) Answers varied in quality to this question. It could be seen that some candidates had obviously practiced the technique either on a beach or in a river and gave detailed answers which included all relevant ideas in order and explained clearly how a clinometer is used to measure an angle. Many answers showed difficulty in describing the fieldwork method. 13 per cent of candidates did not attempt the question. Weaker answers did not make sufficient use of the photograph to describe the method.
- (ii) The question differentiated well. Most answers correctly identified that the hypothesis was true. Stronger answers used the evidence to describe the steeper slope or higher beach level at beach X and gave supporting measurements or statistics from the profile diagrams.
- (d) (i) Many candidates identified the correct alternatives.
- (ii) Strong responses showed real understanding of how to measure frequency by a simple method such as using a pole and stopwatch and counting the number of waves hitting the pole in one minute. Weaker answers suggested using incorrect equipment such as a flowmeter or pluviometer. Many answers showed difficulty in describing a suitable fieldwork method in any detail. Relatively few answers seemed to have any experience of doing or reading about such fieldwork. 21 per cent of candidates failed to attempt the question.
- (e) The description of the method and the explanation of how it protected the coast differentiated well. Stronger answers described the sea wall or other method and explained how it broke the energy of the waves in some way. The description of a groyne proved difficult for some, although most could explain its purpose in reducing longshore drift. 23 per cent of candidates did not answer the final question. Many answers did not accurately name a method such as a sea wall, groynes or rip-rap. Vague ideas which were not acceptable included, barriers, walls, dams, and trees.

GEOGRAPHY

Paper 0460/42
Alternative to Coursework

Key messages

A few tips to pass on to future candidates:

- When answering hypothesis questions that ask for agreement or not, always provide the opinion first before any supporting evidence. This will usually be *yes*, *no* or *partially/to some extent*. Weigh up all of the evidence before making a decision then state it at the start of the answer. Some candidates provide the correct evidence but seem to forget to write down a decision. If they agree with the hypothesis, they shouldn't simply repeat the wording of the hypothesis as there is no credit for this.
- When giving figures in an answer candidates should always give the units if they are not already stated e.g., million days, mg/litre.
- Care should be taken 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.
- All questions should be read carefully, and command words identified 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 a description as well as statistics. It might be helpful to candidates if they underlined the key command words in a question.
- When asked to compare or make judgements e.g., *higher*, *lower*, it is important to use paired data rather than one set on its own or just providing a list of comparative statistics. It is also important to indicate which statistics relate to which sites if appropriate e.g., in **Question 2(b)(iii)** It was not enough to say it was 9.1 mg/l in 2015 and 9.8 mg/l in 2018 – it was important to say this was at Site 1.
- Candidates should ensure that they are using the correct resources that a question refers to for evidence or data e.g., Fig 1.4 and Table 1.1 (Insert). Candidates should be reminded that some resources will be in the Insert and not on the examination paper. For example, if they are referred to a map or graph and a table, they should use statistics from the table rather than try and judge them from the map or graph which can cause inaccuracy.
- They should attempt all completion tasks on graphs, tables or diagrams as they should be aware that 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(f)(i), 2(b)(ii) and 2(d)(ii)**. Note that, where there is a completion task, the instructions are now **emboldened** to try and help avoid missing them out. It is better to use a bold pencil when completing graphs or diagrams so that errors can be erased and corrected; candidates who need to correct answers in ink often create work that is difficult to decipher or credit.
- A ruler and a sharp pencil should be used to improve accuracy and presentation where required. This is particularly important with the bar graphs, pie graphs, choropleth map and graphs that required a cross to be plotted on this paper.
- The number of marks awarded should be considered when planning their answer. Candidates should try not to write outside the lines provided e.g., do not write a paragraph when only two lines are provided as this wastes time.
- As all scripts are now scanned for marking, it would be preferable for candidates to write in black ink, and use a sharp pencil for graphs etc., they should ensure that any plotting and shading of graphs stands out clearly.
- If a candidate needs to write more than the lines allowed, there are additional lined pages at the back of the examination paper to use. They should indicate this with a phrase such as (*continued on page 17*). This is very helpful to the Examiner in finding the rest of their answers. They should also ensure that they 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. There should be no need for them to request additional answer booklets.
- Candidates should make sure all work is legible as if it cannot be read then marks cannot be awarded.

General comments

Most candidates found this examination enabled them to demonstrate what they knew, understood and could do and both **Question 1** and **Question 2** proved to be equally demanding, equally accessible and equally successful in the answers produced. The overall range of marks was from 1 to 59/60 with weaker scripts scoring on the practical questions, such as drawing graphs, and stronger scripts scoring well on the more challenging sections requiring explanation, comparison and judgement especially regarding hypotheses and particularly with **Question 1(e)(ii)**.

As all questions need to be answered on this paper, it is difficult to not follow the rubric correctly, although some candidates do omit graph completion questions which are usually quite straightforward to answer. This is an on-going concern from year to year. On this paper there were a few sections that indicated high percentages of *No Response*. These were especially noticeable where graph or table completions were required i.e., on **Question 1(e)(i)**, **Question 1(f)(ii)** **Question 2(d)(ii)** – especially as completing graphs or a choropleth map proved to be a relatively straightforward task for candidates that attempted them. If there is a graph or map on the examination paper, candidates should expect to have to complete them; it would be very unusual if a graph or map on the exam paper – unlike in the Insert – was already fully completed. All the instructions for completing graphs and diagrams are **emboldened** to help prevent candidates from accidentally missing them.

There may have been a few time issues as some *No Response* answers at the end of **Question 2** were seen. 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. Most points for teachers to consider, when preparing candidates for future examinations, 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. Questions where candidates do not score well often relate to them not taking time to thoroughly read and understand the resources referred to. Such failings often mean that some candidates do not obtain a mark in line with their geographical ability.

Even though this is an *Alternative to Coursework* examination, candidates are still 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 their centre. The lack of knowledge of what a pilot study is, and the methodology used to carry out a river study in **Question 2(e)** would suggest that fieldwork methods are only studied in some centres.

Candidates found **Question 1** and **Question 2** equally accessible.

Comments on specific questions

Question 1

- (a) (i) Almost all candidates correctly chose 2015 as the year with 250 000 visitors. A few picked 2016 or 2017 and others chose 2018; presumably the latter choice was due to candidates reading ‘...*the highest number...*’ but not noting it needed to be 250 000 visitors.
- (ii) Apart from a few exceptions, candidates chose the correct decision that the number of tourists increased.
- (b) (i) The key phrase in this question was ‘...*during the year...*’ and most answers did give an overall view noting the rise from February to August then the decline to December. A few described the change in the first few months which was not the overall description as required. There was a mark for the use of comparative statistics which required the data to include the unit *million days* and not just the number; quite a few missed out on the unit mark by writing ‘2.7 days’ instead of ‘2.7 million days’. The unit was essential for the mark here as visiting for 2.7 days made no sense.
- (ii) Very few correct answers were seen here. Having studied the Malta graph in the previous sub-section, candidates were expected to suggest reasons that related to the visitor pattern in Malta and not provide a generic list of reasons that could affect holiday visits anywhere. Consequently, answers such as ‘most visitors in the summer/August as it is warmer’ or ‘most visitors are in August because that’s when most holidays are’ were credited but answers unrelated to the graph trends were too common and too vague e.g., ‘different holiday patterns, more visitors in better or

favourable or suitable weather'. A few responses referred to low travel costs creating the peak period for visitors but in fact as demand rises prices tend to go up too, so this did not gain any credit.

- (c) One of the three main methods of sampling in the syllabus – Systematic, Random or Stratified – were expected as an answer here with a brief description of the method. The most common one used was Systematic (sometimes misspelt as systemic though) with Random a close second and stratified a rare choice. Those that chose Systematic scored well referring to regular interval or pattern and the 5th/nth person, Random scored less well – especially if they then interviewed random people – and Stratified answers tended to mention groups, but no criteria were provided. Many responses appeared not to know one of these sampling methods which resulted in vague or irrelevant ideas such as 'interview, face- to-face, survey, questionnaire or ask people'.
- (d)(i) The choropleth mapping of Germany and Poland was well done by the vast majority who gained both marks. However, over 10 per cent of candidates did not attempt this question despite the instruction being emboldened as **Plot the data...** Maybe these candidates thought the map looked complete but, in this paper, it is almost always the case that if there is a map or graph it will require completion to demonstrate the candidates' skill beyond written answers.
- (ii) Good responses were seen to this hypothesis question with most candidates judging it to be true and then providing evidence from the table noting 51/200 (not 51 per cent) of visitors were from the UK and from the graph noting that it was the **only** country with over 40 visitors. Some responses just stated that '*the UK had over 40 visitors*' which is not worthy of credit as they needed to spot that the UK was the **only** country with over 40 visitors to support the hypothesis.
- (e)(i) In this question the pie graph needed completion to match the three other ones which were already completed yet a significant minority missed it out thereby losing three marks. Most that attempted it did it well although many did not follow the clockwise order of plotting and shading illustrated by the completed graphs and in the key. A few spoilt their shading by drawing the horizontal lines at an angle or drawing the cross-hatching in the wrong direction.
- (ii) This question required candidates to look at the data and think very carefully before making their decision on the hypothesis and it proved to be an excellent discriminator. The data in the table and the four pie graphs showed that very similar percentages visited Malta for the same reasons i.e., between 41 – 45 per cent visited Malta for sunny weather consequently the hypothesis that *Tourists from different countries visited Malta for different reasons* was not true. Looking carefully at the table showing 6 different reasons and 4 countries, it should have been clearly identified that all the countries visited for the same 6 reasons and to support that, the percentage differences for each reason was deliberately in a very small range e.g., 1 – 2 per cent for water sports. Those candidates that judged it correctly usually scored 3 or 4 marks.
- (f)(i) There were two straightforward horizontal bars to complete here; most did it well, but a few misjudged the 5 per cent plot putting the line with 4 per cent or 6 per cent or even on the 10 per cent line. Occasionally the 30 per cent plot was plotted at 50 per cent.
- (ii) Most answers made suggestions that included 'more/increasing' an existing method e.g., 'more holiday brochures' or 'improving/making better' a current method e.g., 'improving the tourist guide'. A few weak answers suggested having 'more web sites' or 'making the website better'; acceptable answers here would be 'to invest more in the website' or 'to keep it up to date'. Something different and more specific than the ideas of *more/increase* or *improve/better* for which a mark had already been allowed was needed.
- (g) This question was attempted well by most candidates who clearly identified two benefits and two disadvantages of tourism for the local people of Malta. Common benefits included an increased market for selling goods and services and more income alongside jobs plus quite a few cultural benefits. Disadvantages included loss of property or land for new tourist resorts plus seasonal employment and noise pollution alongside traffic congestion. Cultural dilution or lack of respect were mentioned too. The best answers gave examples to illustrate their ideas e.g., instead of vaguely stating *better infrastructure* as a benefit they suggested improved roads or hospitals that the locals could access, or they gave examples of jobs such as a tour guide. With disadvantages instead of just saying *overuse of resources*, they suggested overuse of water or electricity. Some responses showed misconceptions that tourism brings very negative influences such as drugs, more crime, food shortages and tourists taking local jobs.

Question 2

- (a) Most responses showed sensible suggestions of precautions to take while doing tests in the water. These included 'not to drink the water, wash afterwards, wear gloves' and 'wear long-sleeved jumpers' plus 'wellingtons or gumboots if there were sharp stones to avoid'. There were also some strange ideas seen such as to 'take first-aid kits to stop infections, to only do the tests when the animals were sleeping' or 'to wear a helmet to avoid sharp stones on the riverbed'. The frequent use of appropriate clothes or suitable footwear as answers were too vague. Staying away from the river was not an option although this was suggested in some answers.
- (b)(i) This question was quite well done; most responses suggested taking the measurements a second or third time or checking with other candidates. Some advised checking the instrument was being used correctly e.g., resetting it to zero or making sure it was fully immersed. What was not credited were ideas related to choosing more sites, using a different instrument, doing it again on different days or even in different rivers – none of these would make the measurements more reliable.
- (ii) This was well plotted by almost all but too many did not attempt it. Errors included plots at 9.2 or 9.4 or on the wrong vertical line. A few did not use a cross but a dot which was not credited.
- (iii) Most made the correct hypothesis decision and supported it with reference to a site where the oxygen level had increased e.g., Site 1 from 9.1 in 2015 to 9.8 in 2018. The best responses also spotted that the increase was present at each/every/all sites. It is also more logical if years are being compared as here to use the earlier year first e.g., *in 2015 it was... but in 2018 it increased to...* Comparing years in reverse, as quite a few did, was illogical and did not match the hypothesis order.
- (c)(i) A significant minority did not attempt this question; what a pilot study is, and its purpose is an important part of preparing for the real investigation. Most could define it as being 'a trial, test or small-scale study' and its purpose was to check the instruments or check that the site was appropriate. Some did not notice that the pilot study was on the Trade River where the real study would be carried out, so they referred to checking out questionnaires and interviews in their answers. There was a lot of emphasis on safety although that is not the prime objective of a pilot study. As always a few linked the word 'pilot' to overhead surveys of the site including, in this session, the use of drones.
- (ii) Most did this well and understood that the purpose of the kick sampling was to get the insects hiding below the rocks to come out of their shelter so that they could be caught in the net for analysis. A small number incorrectly thought the object was to just dislodge the stones.
- (iii) Not quite as many as in (ii) understood why it was important to identify the species with regard to matching them to the level of pollution in the river; the best answers read Fig 2.3 and could quote or rewrite the sentence that the *location of the species tells you about the quality of the water* which was credited. Some thought the purpose was to identify the species but that did not go far enough to gain credit.
- (d)(i) Most correctly chose 4.
- (ii) While by far the vast majority put the correct answer '4' in the empty box, a significant minority missed it out despite the instruction *Complete this recording sheet*. Some candidates miscounted the circled animals in Fig 2.5 and incorrectly totalled 3 or 5.
- (iii) Many candidates were able to work their way through the maths to come up with 12/12/2/1 for the separate equations and then divide the total 27 by 9 to get the correct Biotic Index Score of 3. A few did not get some parts of the equations correct thereby making their final BIS wrong. A few accidentally produced 3 as their final answer by using incorrect figures – however the correct answer being achieved by luck could not be credited.
- (iv) Apart from a small number, who used data to plot graphs that had already been plotted for neighbouring graphs, almost all the other candidates plotted and shaded the two bars correctly.

- (v) This question was well done, and it was very encouraging to see so many responses made the correct hypothesis decision and then backed it up with data showing that in some cases the Biotic Index increased and in others it either stayed the same or decreased.
- (vi) In a similar way to **Question 1(b)(ii)**, too many responses provided generic ideas when something more specific was required. Just stating 'the flow of the river affects pollution levels' or 'more litter is added in some places' does not provide reasons for the pollution varying. What was needed was a reference to the source and its effects or how the flow of the river can affect the distribution of pollution e.g., 'if there are farms along the river there could be fertilizers entering the river in some places and not others' or 'where there are towns and cities people may drop litter and waste in the river' or 'a fast-flowing river would move pollution downstream away from its source.'
- (e) While there was no evidence of there being a time issue in finishing this paper, a significant minority made no attempt to answer this question. What was encouraging though was that those who had prepared for a question on rivers did have a hypothesis to use and knew how to investigate it. The most popular hypothesis was to propose 'The velocity of a river increases downstream' or 'Does River velocity increase downstream?' Hypotheses are either statements to investigate or questions to answer; a few just listed a topic e.g., 'River velocity', which did not get the hypothesis mark though could gain all the method marks. A few were over-ambitious and attempted to measure the discharge as well as the width and depth; in these cases, credit was awarded for methods that would work for one of the parameters. There were some good responses related to pebble size and roundness changing downstream too.

Those without any knowledge of how to investigate a river hypothesis struggled to think of a suitable hypothesis and made suggestions such as 'does the water in the river always go downhill?' Others gave hypotheses related to water pollution – despite the instruction *Do not refer to water pollution*. Others wanted to compare parameters between 2015 and 2018 despite having no data for 2015; and some just invented hypotheses that were not river-related or could not be investigated e.g., 'there are more insects upstream than downstream', or 'there are more animals in the river in 2018 than 2015' or 'longshore drift occurs more upstream than downstream.'

GEOGRAPHY

Paper 0460/43 Alternative to Coursework
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Key messages

Every examination is different but there are usually a few generic tips and key messages that need making that should improve future candidate's performance. Most of these have featured in previous reports but the same or similar issues do tend to reoccur. Examiners feel that addressing these points will benefit future candidates:

- 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.
- If comparing statistics, it is important to use paired data rather than one set on its own.
- 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. 1.4 and Table 1.1*.
- Attempt all completion tasks on graphs, tables, or diagrams – not all the answers required are on lines and in writing. Many candidates miss out on relatively easy marks by not attempting these questions.
- Consider the marks awarded. Candidates should avoid writing outside of the lines provided so e.g., do not write a paragraph when only two lines are provided as this wastes time.
- If you must write more than the lines allocated indicate this with a phrase such as (*continued on additional page*). This is very helpful to the Examiner in finding your answers.
- When completing graph work use a dark-coloured pencil or pen as scripts are scanned for marking and light colours do not always show up. Always shade bar graphs and pie charts accurately.
- When you think you have finished, check that you have not missed a question out. Some questions may not stand out if they are on pages with a lot of graphs or maps. Make sure you have answered the questions on every page. This applies specially to questions where you are asked to complete tables, diagrams, graphs, or maps.

General comments

Most candidates found this examination enabled them to demonstrate what they knew, understood, and could do. The overall range of marks went from 0 to 55 out of 60 – a similar range to previous years – with weaker scripts scoring on the practical questions, such as drawing and interpreting graphs and tables, and stronger scripts scoring well on the more challenging sections requiring explanation and judgement especially regarding hypotheses. Most candidates answered **Questions 1 and 2** with equal facility.

As all questions need to be answered on this paper, it is difficult to not follow the rubric correctly, although some candidates do omit graph completion questions which are usually quite straightforward to answer. This is an on-going concern from year to year.

Although there were no significant reports of time issues some candidates tend to write too much in some sub-sections. Candidates should be encouraged to answer more succinctly and perhaps give more thought to what they need to write prior to writing 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 2(f)** where some candidates wrote about the effects of a by-pass road on the natural environment rather than on people as required by the question. **Questions 1c(i), 1d(i) and 2c(iii)** required candidates to suggest possible weaknesses in the fieldwork methodology. This type of question, or similar suggesting improvements such as **Question 1d(v)**, is frequently included on this paper and is an area which can be practised with candidates in school. However, developing a series of generic improvements which may apply to all fieldwork should be avoided, as such suggestions tend to be vague and may not gain any credit.

Even though this is an Alternative to Coursework examination, candidates will still be expected to show that they know how fieldwork equipment is used and understand appropriate fieldwork techniques even if they have only limited opportunity for fieldwork within the centre. For example,

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

Comments on specific questions

Question 1

- (a) The quality of candidates' answers varied. Risk assessment is an important part of fieldwork which candidates need to consider. Candidates suggested better answers about how to reduce the risk of slipping and getting an illness from the water than they did about falling into the river. Weaker answers were often too vague to credit, for example 'wear suitable footwear' or 'wear protective clothes'. Answers such as 'do not mess around' and 'do not run' are good general advice but not specific enough to reduce particular risks.
- (b) (i) This question discriminated well. There were many excellent full mark answers which described in a logical sequence the methodology of testing the velocity by timing a floating object over a measured distance. Weaker answers omitted crucial details such as measuring a distance before placing the poles, putting the float in the river at the upstream or starting pole, and timing the movement of the float from pole to pole. A minority of responses described the use of a flowmeter. Generally, these answers lacked sufficient detail to score high marks.
- (ii) Nearly all candidates drew the bar accurately.
- (c) (i) This question appeared to be quite difficult for some candidates. Answers such as 'deep water, dangerous or fast current' were too vague to gain credit. The most common difficulty suggested was the possible impact of the river current moving the tape. Other good responses suggested that 'it would be difficult to make sure that the tape was touching an uneven riverbed'. A common answer which was not accepted was the danger that candidates might fall into the river, or even be washed away by the fast current.
- (ii) Nearly all candidates plotted the result accurately on the scatter graph. Some candidates misread or misjudged the scale of the wetted perimeter axis.
- (iii) The question produced good differentiation. Most answers agreed that the hypothesis was true. Stronger answers described the relationship as being positive or stated that both velocity and wetted perimeter increased downstream. The best answers also included velocity and wetted perimeter statistics from two sites to support the conclusion.
- (d) (i) Correct answers referred to the subjectivity of decisions made using the Powers' Scale or that it was difficult to distinguish between categories. Weak answers suggested incorrectly that the Powers' Scale was inaccurate. Also, the weak answers suggested that the shape of the pebbles on the Powers' Scale did not match the real pebbles, so it was difficult to judge.

- (ii) Most candidates completed the pie graph accurately. Despite having four other pie graphs as illustration, some candidates plotted the segments in the wrong order and potentially only scored one mark if the shading was appropriate.
- (iii) This question differentiated well. Better responses gave supporting evidence for the hypothesis but also referred to an anomaly in the results which illustrated an exception to the general pattern. Good responses used one category of rocks, either rounded and very rounded or very angular and angular, and described the change downstream, supporting this change with appropriate statistics which also illustrated the anomaly in the results.
- (iv) Good answers focused on abrasion and attrition being responsible for making rocks more rounded. Some answers mixed up the definitions and descriptions. A common error was to suggest that rocks becoming more rounded downstream was due to a change in velocity. A few answers also explained that the time rocks were carried in the river would affect how rounded they became.
- (v) It appears that this question was found to be quite difficult, and many gave answers that were vague, for example 'repeat the method'. Another answer which was not accepted was 'do the fieldwork at more sites'. This would just give more information from different places rather than improve the reliability of the sample selected at one site. Other incorrect suggestions included adjusting the Powers' Scale and measuring the pebbles. Good answers suggested sampling more pebbles at the same site and getting other candidates to check the results in some way.
- (e) Most candidates chose the correct pieces of equipment, although the three distractors were chosen by different candidates.
- (f) The question differentiated well. Weaker answers did not describe change downstream but merely identified features of a river or valley. Common answers referred to speed of river flow increasing downstream, the river becoming wider or deeper and load becoming more rounded. Other correct answers included the gradient of the river becoming less, and the presence of meanders and oxbow lakes further downstream. A common error was in describing the velocity as decreasing downstream.

Question 2

- (a) Most candidates estimated the distance correctly as 3.2 km. The most common error was 3.8 km.
- (b) Most candidates understood the term 'secondary data'. They either defined the term or gave an example such as 'got from the internet'.
- (c) (i) Most candidates correctly identified 'tally' as the correct method.
 - (ii) This question differentiated well between candidates. Good answers referred to working in groups and dividing the tasks up, recording the vehicles in different categories using a tally, and using a timer to know when to count and for how long. Weaker answers confused their answer with a pedestrian survey and some incorrectly suggested using a questionnaire with local people.
 - (iii) The question appeared to be quite difficult for many candidates, with few achieving full marks. Although most candidates did gain some credit. The most common problem suggested was not being able to tally or count all vehicles at busy times, or when vehicles travelled too fast, or many vehicles passed at the same time. Another popular answer referred to difficulty in categorising some vehicles, e.g., is the vehicle a minibus or a coach? Some candidates did suggest problems created by specific weather conditions such as heavy rain. Weaker answers suggested that candidates would get tired or bored which was not accepted. However, loss of concentration was credited.
- (d) (i) Most candidates plotted the two points accurately. There were some errors caused by mis-reading the vertical scale and occasionally failing to plot the points on the appropriate time lines.
 - (ii) Few candidates identified flow lines on a map as being the most suitable method to show traffic numbers.
 - (iii) Most responses made the correct conclusion that the hypothesis was true. They then supported the conclusion by stating that the amount of traffic decreased after the by-pass was constructed.

Some responses wrongly gave supporting statistics from different vehicle categories rather than referring to the total number of vehicles. However, many responses gave correct figures, either referring to specific times of day or adding up the daily totals.

- (e) (i) Most candidates who attempted the question drew the divided bar accurately. Only a few candidates misread the scale and ended the bar at 140 rather than 135.
 - (ii) Nearly all candidates identified the correct survey time.
 - (iii) Most answers showed an understanding of why the hypothesis was false. They identified that traffic numbers on the by-pass varied during the day. Some answers only referred to total number of vehicles but not the number of vehicles in different categories, so limiting them to two marks. Good answers did refer to both and gave comparative statistics for two different times of day.
 - (iv) The most common answer referred to travelling to and from work or school. Also, many answers suggested that traffic numbers were less in the evening because people were at home with no need too travel. Weaker answers had misinterpreted the question and wrote about the use of different types of vehicles.
- (f) The final question differentiated well. Better responses suggested detailed advantages and disadvantages for people living in the village, such as less traffic noise, less air pollution and less danger from vehicles, and fewer customers in village shops. There were less suggestions made about people in the surrounding countryside, although a common disadvantage was the noise or disturbance created during construction of the by-pass. Most responses suggested that the by-pass would reduce congestion or speed up journey times generally. The weaker responses were often too vague to gain credit, for example 'more traffic noise' needed to be linked to the countryside and 'less traffic noise' needed to be linked to the village. Other vague answers referred to unspecified pollution, and that it was 'easier for drivers' on the by-pass. Some candidates did not follow the question guidance to consider people and instead wrote about the effects on the natural environment.