

GEOGRAPHY

Paper 0460/11
Paper 11

Key messages

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

- Ensure that the examination rubric is followed correctly, answering 3 questions, one from each section.
- Select the three questions with care. Read them all through and study the resources provided with them before making a choice.
- Answer all parts of the three chosen questions and ensure that sub questions are not missed.
- Read the questions carefully. If it helps to do so, underline command words and words which indicate the context of the question.
- Respond in the correct way to command words used in questions, in particular 'suggest reasons', 'describe' and 'explain'.
- Identify the correct focus specified in the question stem – e.g. causes or effects, local or global, within or between countries.
- Ensure that they respond correctly to key words and learn the meanings of geographical words and phrases in order to be able to define and accurately use geographical terminology. When defining words or phrases, candidates should not simply repeat a word or words as part of their definition.
- Use the mark allocations and answer space provided in the question and answer booklet as a guide to the length of answer required and the number of clear points that need to be made.
- Write as clearly and precisely as possible avoiding vague, general statements.
- Write in full wherever possible, especially in the final two parts of each question, ensuring that ideas are developed with the correct focus.
- Perform basic skills using data tables, graphs, photographs and maps of various types, referring to them in an appropriate way to support ideas rather than directly lifting material from them without any interpretation. Ensure that evidence is given where required to support an answer and that best use is made of the information provided, such as the compass, scale and key on maps. Practise the skill of describing the features or characteristics from a photograph.
- If the rubric of a question instructs candidates to base their answer only on the information in a given figure, then answers that do not relate to the that resource should not be included as they will not gain credit.
- Have a range of case studies so that appropriate ones can be chosen for the topics tested.
- Ensure that each case study used is at the correct scale. The syllabus identifies the scale required for each case study.
- Avoid writing a long introduction to any question (e.g. to provide place locational information) at the expense of answering it in detail.
- Develop points and link ideas wherever possible in case studies and include place detail.
- Ensure that comparative language and phrases are used where a question requires a candidate to compare.
- Ensure knowledge of physical processes and an ability to explain a process using key terms and clearly sequenced ideas.
- Write in detail and develop ideas in **(b) (ii)** questions where development marks are available.
- When using the extra pages at the back of the question and answer booklet indicate that the answer is continued and clearly show the number of the question on the extra page. Candidates should aim to continue answers on the specified continuation pages rather than inside the answer booklet.

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 stronger responses did very well across the paper and some excellent Geography was seen. Most candidates were able to make a genuine attempt at their

chosen questions. However, weaker responses showed signs of finding it difficult to interpret questions and write relevant answers.

Most candidates followed the rubric by selecting a question from each section as required. Occasional rubric errors were still seen and a reminder to candidates to answer one question from each section is always helpful.

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

Questions 1, 3 and 6 were the most popular questions within each section although a significant number of candidates answered **Question 5** rather than **Question 6** – this section was quite balanced. There were good answers seen to all questions, including those requiring extended writing. The case study questions that were answered the most successfully were about the problems caused by overpopulation and a transnational company and its global links (1c and 5c). Higher quality answers in these case studies were characterised by developed ideas with some clear place detail. Weaker responses tended to be generic developments of ideas with little place detail to support them, whilst other responses were characterised by the use of simple, brief statements. In some cases a significant amount of detail included by candidates was not relevant to the question being asked, and sometimes long introductions occupied much of the answer space. An area for improvement for some candidates would be maximizing the marks scored on the part **(c)** questions.

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

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

Comments on specific questions

Question 1

This was more popular than **Question 2** with the vast majority of candidates attempting this question. This was also the question where candidates showed the strongest overall performance for the paper as a whole.

- (a) (i)** The strongest responses gave a precise and accurate definition for birth rate. Weaker responses sometimes did not include a reference to a key element of the definition, usually “per year”.
 - (ii)** This question was well answered. On the whole, candidates were able to interpret the data table to place the countries in the correct order (from highest to lowest) for natural population growth rate. Some candidates reversed the position of Brazil and Chile and therefore, scored only one of the two marks available.
 - (iii)** This was generally well answered with a significant number of candidates gaining full credit for accurate answers that showed all stages of the calculation. In weaker responses, just natural increase was calculated and account was not taken of net migration.
 - (iv)** On the whole, this question was not as well answered as some of the other parts of **Question 1**. The best responses were clearly based on Figure 1.1 and identified variation in birth rates, death rates and migration. This is an example of a question where candidates would benefit from reading the question more carefully. Many responses went beyond what was in Figure 1.1, despite the rubric which said to use the information in Figure 1.1 **only**. In particular, many candidates wrote their entire answer about reasons for increasing birth rates (or reasons for decreasing death rates in some cases). It is important that candidates recognise the fact that population increase cannot be determined by birth rate, death rate or migration in isolation. The other way to improve answers would be for candidates to ensure that they take full account of the reference to “other countries” as stated in the question.
- (b) (i)** Candidates generally performed well on this question. Stronger responses made reference to large amounts of immigration and then exemplified this with two clearly explained pull factors. Other

answers identified low death rates as a reason but fewer candidates identified the mark scheme points relating to birth rates or small amounts of emigration.

- (ii) Again, this question was generally well answered. Candidates are well prepared for questions such as this and showed particularly sound knowledge and understanding of the factors that lead to high birth rates. Most candidates clearly identified the fact that the question was focused on natural growth rate. There were fewer answers that focused on reasons for increased life expectancy although the strongest responses included a reference to both. There were some good examples of development seen. Advice to candidates for questions such as these would still be to avoid vague comments that are not specific to the question – for example “little education” as a reason without a link to little education about birth control or little education about the adverse impacts of large families.
- (c) This was one of the better answered case study questions. The full range of marks was seen for this question and there were some excellent responses based on a thorough knowledge of appropriately chosen examples such as India, Bangladesh and Nigeria. The strongest responses clearly developed their ideas and included appropriate place specific detail and good use of statistical information to exemplify them. Some candidates who chose China wrote about the one child policy at length, which was only able to gain limited credit as the focus tended to be about the strategy for reducing overpopulation rather than the problems that overpopulation causes. In weaker responses, candidates are still writing in simple terms without developing their ideas in enough detail to allow them to access Level 2.

Question 2

Only a very small number of candidates answered this question. For those that did, it was generally well answered and they performed at a similar level overall to those candidates who answered **Question 1**.

- (a) (i) There were some accurate definitions seen but often, responses repeated the words in the stem of the question rather than defining them and therefore were not worthy of credit.
- (ii) There were mixed responses to this question. Stronger responses clearly identified two differences between the housing in the two areas and wrote in comparative terms. Accurate reference to differences in age was a commonly seen response although some candidates did seem confused over the likely differences in cost of housing in a MEDC context.
- (iii) There were mixed responses to this question. Candidates gained credit for the idea that Ottawa had grown outwards and were usually able to give the direction of growth to support this. The use of the scale was not seen and better use could have been made of the key to identify the stages of growth.
- (iv) This question was well answered with most candidates gaining credit for references to traffic congestion or various environmental issues, which seem to be very well known and understood by candidates. Weaker responses typically included vague references to overcrowding, unspecified facilities/services and unemployment (the question is about growth of the urban area not the growth of the population). Better consideration of the context of the question would help candidates to avoid irrelevant references to global problems and help them to focus on the problems at an appropriate scale.
- (b) (i) This question was also well answered and good interpretation of the data was made to compare the two areas and give three appropriate differences. Candidates were generally successful in using comparative language. Occasionally, responses did not gain credit because the two areas were mixed up.
- (ii) This was well answered with a range of mark scheme points seen. There was also some clear development of responses.
- (c) There were mixed responses to this question. Most candidates correctly named an appropriate urban area and were able to focus on the CBD. Most candidates were also able to gain credit for describing the characteristics of a CBD but only the strongest responses went on to explain all points in detail. Responses would have been improved by clearer explanation of characteristics of a CBD in a named urban area – for example, high rise buildings as land is expensive due to competition so buildings go upwards to save space (and cost).

Question 3

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

- (a) (i) This was very well answered and nearly all candidates identified the correct definition of an earthquake.
- (ii) Again, this question was well answered and candidates were able to describe two impacts of an earthquake based on Figure 3.1. Weaker responses made reference to impacts of earthquakes that were not evident on Figure 3.1 and did not sufficiently follow the rubric of the question.
- (iii) This was generally well answered. Well prepared candidates were able to confidently explain the formation of earthquakes at a conservative boundary giving clear points relating to the appropriate plate movement, pressure build up and release. There are still some vague and imprecise references in weaker responses to plate movement and better use of subject specific terminology would improve responses.
- (b) (i) This was well answered and candidates made good use of the resource to identify three reasons why some earthquakes cause more deaths and injuries than others.
- (ii) This question gave the opportunity to show knowledge of LEDCs and MEDCs. Lots of valid ideas were seen, many which were well developed – for example references to ‘earthquake proofing’. Comments on earthquake predictions and evacuation before one occurs are still prevalent when this question is set, showing a lack of understanding of the fact that earthquakes occur without sufficient warning to evacuate buildings or areas.
- (iii) This was generally well answered and candidates were able to correctly identify many of the mark scheme points. Answers that focused on ideas relating to volcanoes, such as fertile soil, were not able to gain credit and more careful reading of the question is still required in some cases. There were some inaccurate references to “cheap land and housing”.
- (c) This case study was not as well answered as some of the other part (c) questions. There were some very strong responses which appropriately focused on the causes of an eruption of an appropriately named volcano. They also included well-developed sequences clearly explaining processes with effective use of subject specific vocabulary. Weaker responses tended to focus on impacts rather than causes and therefore, points made were often not relevant to the question being asked. There were some inappropriate references to the area affected rather than the actual name of a volcano.

Question 4

This question was less popular than **Question 3** and, in general, candidates performed slightly less well on this question than on **Question 3**.

- (a) (i) A significant number of candidates answered this correctly. Some candidates ticked two boxes and therefore could not gain credit.
- (ii) Some candidates were correctly able to identify the two types of weather required and appreciated the need to include maximum and minimum temperature. This question was not well answered on the whole as not all candidates realised this and included a more vague reference to just temperature on its own.
- (iii) There were mixed responses to this question. Some candidates made good use of the photograph to clearly describe characteristics of the Stevenson Screen that were evident. Some candidates incorrectly referred to siting factors or made comments that were too vague to gain credit.
- (iv) This question requires candidates to show an understanding of siting factors and the most commonly seen mark scheme ideas referred to were shelter, surface and buildings. On the whole, this question was not answered well by candidates.

- (b) (i) This question was better answered and candidates were able to use the photographs to offer some comparison of the amount and type of clouds shown. Responses would have benefitted from more precise use of key terms, particularly knowledge of the names of cloud types.
- (ii) Candidates found this question challenging and would benefit from greater knowledge and understanding of the reasons for differences in cloud cover between desert and equatorial climates. The answer required responses to make a comparison but comparative language was not always evident. However candidates were able to gain some credit for reference to one area or another and this was usually more confidently done for Equatorial regions. Simple ideas relating to air pressure and air rising/falling were seen but often answers did not go beyond the more simple ideas.
- (c) There were mixed responses to this question and unfortunately too many candidates did not correctly identify the global context of this question. There were also incorrect references to impacts on people when the question had an environmental focus. There were however some very well-developed responses seen regarding global warming with very clear place specific detail about the places likely to be affected.

Question 5

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

- (a) (i) This question was very well answered and mostly correct.
- (ii) Most candidates were able to correctly identify the relationship between GNP per person and adult literacy. Fewer responses then went on to comment on the “to what extent” part of the question and evaluate the strength of the relationship.
- (iii) Most candidates were able to give a simple explanation about the link between a higher GNP and being able to provide more education facilities or about the fact that if people are literate, they are more likely to get employment. Other mark scheme points were less commonly seen and on the whole, this question was not confidently answered.
- (iv) When candidates had a clear understanding of the term “employment structure”, they were able to give differences between the employment structure of MEDCs and LEDCs. Fewer responses made reference to the idea of using employment structure to compare countries or show change over time. This question was found to be challenging by a significant number of candidates who did not show a full appreciation of the key term and therefore found it hard to access the question. From a content perspective, candidates would benefit from a clearer understanding of the changes in the secondary sector of employment that occur as a country develops.
- (b) (i) This question was better answered and most candidates were able to correctly identify an area with a high HDI and low HDI within Argentina. There was usually appropriate reference to names of states or parts of the country. Few candidates commented on areas with a moderate HDI or commented on the fact that the variation within the country is quite small – i.e. the overall trend.
- (ii) This question differentiated well and the strongest responses identified differences within countries and the reasons for them. In these responses, there were good examples of development seen. Less confident responses discussed differences between countries and were not fully focused on the correct context of the question.
- (c) There was good use made of appropriate examples in this case study question. Candidates showed some good development and sound knowledge of statistical information and locational detail relating to their chosen TNC. Some responses did not gain credit, either in full or part, due to irrelevant references to the advantages or disadvantages of transnational corporations.

Question 6

This was more slightly more popular than **Question 5**. On the whole, candidates performed equally well on these two questions.

- (a) (i)** There were some very good definitions seen. On the whole, this question was not well answered because of a repeat of the word “assembly” rather than a clear definition of the term.
- (ii)** This question was better answered with most candidates gaining at least half of the available credit. There was a general appreciation of the use of machines to support the idea of car assembly being highly mechanised and appropriate use of the figure.
- (iii)** On the whole candidates were able to offer definitions for at least some of these terms. Some candidates would benefit from giving more precise and clearer definitions. Some responses were just a list of examples which does not answer the question in terms of providing a definition.
- (b) (i)** This was well answered and candidates made good use of the photograph provided to identify the advantages of the area shown for the location of manufacturing industry and a wide range of mark scheme ideas was seen.
- (ii)** This question differentiated well and the best responses presented valid reasons to explain why the industry may move to a different location. A wide range of mark scheme points was seen. Weaker responses did not gain credit due to use of vague statements – for example, they would move ‘due to complaints’ rather than clearly stating what the complaint might relate to and therefore, explaining clearly the reason for the change of location.
- (iii)** Most candidates appreciated that this question was about the local natural environment and there were some well-developed and appropriate ideas that showed the full range of mark scheme ideas. Sometimes there were incorrect references to global environmental problems or more vague answers such as a reference to “noise” without a qualification of how this would then cause a problem for the local natural environment. There were some irrelevant references to the impacts on people.
- (c)** There were lots of simple statements which listed energy types allowing the majority of candidates to gain some credit on this question. Better responses were able to add detail, especially when writing about HEP, geothermal or solar power. Some made good place references in their answers although some did tend to focus on just one scheme rather than provide an overview of the country. Some answers focused on the advantages and disadvantages of energy types which was not relevant for this question.

GEOGRAPHY

Paper 0460/12
Paper 12

Key messages

To perform well on this paper, candidates need to:

- ensure that the examination rubric is followed correctly, answering three questions, one from each section.
- select the three questions with care. Read them all through and study the resources provided with them before making a choice.
- answer all parts of their three chosen questions and ensure that sub-questions are not missed.
- read the questions carefully. If it helps to do so, underline command words and words which indicate the context of the question.
- respond in the correct way to command words used in questions, in particular ‘suggest reasons’, ‘describe’, ‘compare’ and ‘explain’.
- identify the correct focus specified in the question stem, e.g. internal or international migration, local or global.
- ensure that they respond correctly to key words and 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 question and answer booklet as a guide to the length of answer required and the number of clear points that need to be made.
- write as clearly and precisely as possible avoiding vague, general statements.
- write in full wherever possible, especially in the final two parts of each question, ensuring that ideas are developed with the correct focus.
- perform basic skills using diagrams, graphs, photographs and maps of various types, referring to them in an appropriate way to support ideas, rather than directly lifting material from them without any interpretation. Ensure that 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 of an area from a map or photograph.
- base their answers only on the information in the given figure if the rubric of the question instructs this. Answers that do not relate to that resource should not be included as they will not gain credit.
- have a range of case studies so that appropriate ones can be chosen for the topics tested.
- ensure that each case study used is at the correct scale. The syllabus identifies the scale required for each case study.
- avoid writing a long introduction to any question (e.g. to provide locational or background information) at the expense of answering it in detail.
- develop points and link ideas wherever possible in case studies and include place detail.
- ensure that comparative language and phrases are used where a question requires a candidate to compare.
- ensure knowledge of physical processes and be able to explain a process using key terms and clearly sequenced ideas.
- write in detail and develop ideas in **(b)(ii)** questions where development marks are available.
- indicate that the answer is continued and clearly show the number of the question if using the extra pages at the back of the question and answer booklet. Candidates should continue their answers on the specified continuation pages rather than inside the answer booklet.

General comments

The examination differentiated effectively between candidates of all ability levels. Many candidates performed very well across the paper and demonstrated excellent Geography. Most candidates made good

attempts at their chosen questions. Weaker candidates found it difficult to interpret questions and write relevant answers. There was sufficient time to complete the paper.

As required, most candidates followed the rubric by selecting a question from each section. Occasional rubric errors were seen once again this series, candidates are reminded to answer one question from each section.

Candidates' presentation of answers was variable, though almost all were legible.

Questions 1, 4 and 6 were the most popular questions within each section; a significant number of candidates answered **Questions 3 and 5**. There were good answers to all questions, including those requiring extended writing. There were numerous excellent answers to all part **(c)** questions, including case studies. High quality answers in these sections were characterised by developed ideas with some clear place detail and/or data. Weaker responses tended to offer generic developments of ideas with little place detail or statistics to support them. Other weak responses were characterised by simple, brief statements. In some cases, a significant amount of detail included by candidates was not relevant to the question being asked, and sometimes long introductions occupied much of the answer space. To maximize their marks scored on the part **(c)** questions, an area for improvement for some candidates would be to develop or link relevant ideas and omit detail which is not relevant to the question.

To gain marks at the highest level, case studies require place specific information. Candidates should carefully consider their choice for each question ensuring that they select an appropriate example and that they have included appropriate place specific detail. It should be noted that case studies are not always required in part questions. For example, on this paper, neither **Questions 3 nor 4** required case studies. Where case studies are required, place specific detail needs to be included for maximum marks. Other styles of questions may also benefit from the inclusion of specific reference to place (e.g. **Question 4**) and statistical information related to the topic (**Question 3**) may also be relevant.

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

Comments on specific questions:

Question 1

Question 1 was more popular than **Question 2** with most candidates attempting it. Overall performance on this question was slightly better than on **Question 2**.

- (a) (i)** While there were many correct definitions, some did not score the mark as they did not state that many people lived in 'a small area/per square kilometre'. Some wrongly defined 'overpopulation'.
- (ii)** This was answered correctly by many candidates. Errors were usually the result of confusion over the number of zeros or dividing area by population. Most candidates gave answers to two decimal points as required,
- (iii)** Most candidates linked the distribution to the sparsely, moderately and densely populated areas and therefore were able to gain three marks. Some candidates were unable to look at the continent as a whole to describe the distribution, but instead focused on countries or used inappropriate terms such as 'above' or 'below' the equator. It is essential to be able to accurately use compass directions in this type of question.
- (iv)** Some candidates missed the key word 'physical' or were confused with human factors. Better answers linked population density to different factors, especially relief and climate, or gave reasons why the chosen factors affected population density. Weaker answers simply stated factors without providing any explanation.
- (b) (i)** Many candidates failed to score because they did not compare the two areas but only referred to one island. Most correct answers focused on building height and the amount of vegetation or open space. Relatively few answers referred to the buildings on Male being closer together. Many answers, in whole or in part, did not relate directly to population density; for example, they included writing about cars, crowded streets and ships.

- (ii) This was well answered, with many candidates gaining 4 or 5 marks for identifying, and in some cases developing, a range of problems caused by overpopulation. Some weak answers included vague generalisations that gained no credit (for example, single words such as 'overcrowded', 'crime', 'congestion', and 'pollution').
- (c) There was a variety of case studies; the two most popular countries named were Mexico and Poland. Most candidates suggested a variety of reasons for migration, but many did not develop them sufficiently. Some candidates only used statistics to compare two countries, usually Mexico and USA. Even if they use statistics, candidates should include some written development (for example, the most common developed response about finding paid work was the idea of remittances being sent home). Less popular answers focused on countries where people were forced to flee because of war or a natural hazard. In these cases, Syria tended to be the named country. Many of these were excellent answers as they offered developed reasons based on the perils of living in a war zone or the inability to cope with a hazard such as drought.

Question 2

Only a small proportion of candidates answered this question. While some excellent answers were seen, generally the performance on this question was not quite as good as on **Question 1**.

- (a) (i) Many candidates gave an acceptable definition of 'inequalities'. A significant number responded by confusing the term with unfair or offering the word 'equal' rather than one showing understanding of its meaning.
- (ii) Most candidates described a problem and scored marks, with the most common types chosen being air pollution and noise. Some candidates correctly identified pollution types but did not go on to state a problem or referred vaguely to 'health problems' or 'disease'.
- (iii) Many candidates gave good answers which referred to ideas such as high car ownership, commuting, migration or population growth. Some candidates answered the question incorrectly by focusing on the problems caused by traffic congestion.
- (iv) Generally, candidates referred to the lack of houses for the large population and many developed this idea by referring to the need for many people to live in squatter settlements. Other common answers focused on people not being able to afford the available houses and old housing needing renovation.
- (b) (i) Most candidates used the maps well to describe three appropriate changes in land use.
- (ii) This question discriminated well. More perceptive candidates did concentrate on conflict, such as that caused by renovation of housing and changes to the industrial structure, or suggested ideas such as conflicts created by two neighbouring land uses. Weaker answers simply described problems such as people losing their homes, traffic congestion and various types of pollution.
- (c) A variety of countries was selected with India and various African countries, such as Nigeria, being common. Some candidates showed thorough knowledge of the reasons for rural to urban migration. Few candidates were able to link their developed statements to place specific references. As in **Question 1(c)**, weaker candidates suggested a variety of reasons for migration, particularly employment and the provision of various services, but did not develop them.

Question 3

This question was less popular than **Question 4** and, in general, candidates performed slightly less well on this question than on **Question 4**.

- (a) (i) Most candidates correctly estimated 17 km.
- (ii) Most candidates identified the correct landforms, though not all selected 'wave-cut platform'. The most popular distractor was a spit and, despite the instruction to select 'two' landforms, some selected three or more.
- (iii) Most responses gained at least two marks for knowing that soft rocks are less resistant to erosion and then stating that a bay was formed where the soft rock had been removed. Full marks were

obtained by the reference to the idea of formation of a discordant coastline (alternating bands of rock of different resistance).

- (iv) This question was a good discriminator. Where candidates realised that a beach was formed by depositional processes, they usually scored at least three marks by referring to constructive waves (or loss of energy), shallow water in the bay and deposition of sediment. Weaker responses incorrectly tried to explain that the formation of the beach was related simply to erosion of the rock forming the bay.
- (b) (i) Most candidates correctly identified the appropriate methods.
 - (ii) This was another question which discriminated well. Better candidates were able to explain how each of the shown methods of coastal management protects the coastline. Weaker answers were characterised by repetition of ideas about each method 'absorbing the power of the waves', or just stated that the different methods 'stopped erosion' by the sea or waves. The purpose of groynes was well understood by most candidates, and there were many appropriate references to them reducing longshore drift.
- (c) Most candidates gave some description on the conditions required for the development of coral reefs. A minority described the conditions in detail and developed their ideas by using appropriate statistical data to gain full marks. Some candidates offered only simple statements such as the coral reefs need 'warm water', 'clean water', etc. Some candidates wrote that coral reefs need 'a warm temperature', though did not relate development of the reefs to the temperature of the water. There were candidates who included irrelevant detail about the location and characteristics of the different types of coral reefs, while others focused more on their destruction by people or rising global temperatures.

Question 4

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

- (a) (i) Most candidates correctly estimated 1050 mm.
 - (ii) While many candidates correctly identified both climate graphs, some candidates mixed up **C** and **B**, and others just seemed to guess with all combinations of answers seen.
 - (iii) Most candidates correctly identified climate graph **D** and then referred to valid ideas such as high temperatures and rainfall, and 'all year round'.
 - (iv) This was a challenging question for candidates. Many responses scored only one mark for reference to the position of such areas being on or close to the equator. Better answers referred to the position of the overhead sun and the convection process.
- (b) (i) Many candidates scored three marks by correctly using evidence from the map. Where candidates missed the instruction 'using evidence from Fig. 4.2 **only**', they gave general reasons for deforestation, such as farming, and did not score.
 - (ii) This discriminated well. The best answers focused on problems in the local environment, notably habitat loss, impact on the food chain, animal deaths, soil erosion, or human problems such as flooding or loss of homes, culture and livelihood. Some candidates included global problems which were not required as the question clearly stated 'the **local natural** environment'.
- (c) It is vital that candidates read the questions carefully. Many described the impacts of deforestation on local people and ignored the global element. This meant that they gave similar responses to those given in (b)(ii). Most candidates who did interpret the question correctly described the problem of global warming, linking it with an increase in greenhouse gases such as carbon dioxide and gained Level 2 marks. Better answers then included ideas about melting ice, rising sea level and their effects on people and wildlife in other areas, such as polar bears. A few good answers also referred to effects of changing climate patterns and/or named places affected. Weaker responses incorrectly wrote about problems in the local forest environment, naming those regions, and many mentioned global warming but then switched back to writing about local issues.

Question 5

This question was answered by several candidates but was not quite as popular as **Question 6**.

- (a) (i) Most candidates drew an appropriate best fit line.
- (ii) Many responses correctly identified the positive relationship shown on the graph. Relatively few commented on the extent of the relationship or referred to anomalies.
- (iii) The most common answer was to explain that families could afford to send their children to school where GDP was high so they gained skills and got a better paid job. Some candidates also explained that in more developed countries where families were richer there was less need for children to work rather than attend school. Weak answers repeated the answer to the previous question, rather than attempting to explain the relationship.
- (iv) Knowledge of the HDI varied considerably. Many candidates gave a list of development indicators which sometimes included relevant ideas, such as life expectancy and GDP, but also others which are not used in HDI calculations. Many candidates included literacy as an indicator rather than years of schooling. Better answers referred to the HDI being a composite indicator which scores from 0 to 1, with scores closer to 1 indicating a higher general level of development.
- (b) (i) Most candidates gained two marks for recognising that more energy is used in North America and quoting appropriate statistics to support this. Others also recognised the greater variation in energy used in different parts of Africa than in North America.
- (ii) While this was a challenging question for many candidates, it discriminated well. It produced some excellent responses, which included ideas about population size, presence or absence of energy resources, ability to afford to develop or import these resources, and examples of what leads to a greater energy demand (e.g. manufacturing industry, vehicles and electrical appliances). Weaker candidates misinterpreted the map key and merely stated that some countries were more developed and would thus use more resources, or focused on oil rather than energy in general.
- (c) Many countries were named, most commonly Iceland, Germany, UK and USA, along with a small number of LEDCs. Most candidates identified or described the different types of energy resources but did not explain their importance to the country. The most common valid explanations referred to the availability of a resource (or suitable conditions to generate it) within the country, or some energy sources being renewable or non-polluting. Some candidates did not answer the question and explained why different resources were not important or why it was important that a country should have a variety of different energy resources.

Question 6

This was more popular than **Question 5**. Generally, candidates performed equally well on both these questions.

- (a) (i) A common error was to define tourism rather than the tourist industry. While there were a significant number of correct answers, many re-used the words 'tourism' and/or 'industry' in their answers which was not worthy of credit.
- (ii) Most responses correctly identified examples of the two different types of attraction, though some gave generic answers rather than using Fig. 6.1.
- (iii) Many answers scored three marks by correctly referring to evidence from the map. Where candidates missed the instruction 'using evidence from the Fig. 6.1 only', they wrote about general changes, such as 'pollution' or the creation of the national park, which were not creditworthy.
- (b) (i) Perceptive answers gave three different impacts of the information shown on the notices, while some responses were repetitive or irrelevant (for example, referring to protecting the visitors). Some answers simply lifted advice from the notice shown in Fig. 6.2, rather than explaining how this would help to protect the natural environment. A common misconception was that firearms would harm the environment by fire.

- (ii) This question allowed good discrimination. It was answered well by many candidates who referred to employment, income for local businesses, specified infrastructural improvements and cultural exchange. Better answers also suggested appropriate ways in which money could be used to benefit people in the local area. Some candidates were confused by the mention of 'people who live in or close to national parks' and suggested how they would benefit as tourists.
- (iii) This question was well answered. Many different problems were suggested, and many candidates scored four or five marks. The wording of the question here referred to 'local people'; however, some responses referred to the natural environment and/or the economy. These points which would have been valid had they been elaborated in terms of their impacts on the population; for example, 'water pollution' could reduce fish stocks for local fishermen and 'leakage of earnings from the country' could result in less of it being invested in hospital and schools within the country.
- (c) There were some good answers to this question most gave Lesotho as their example, or focused on countries in the Middle East such as the UAE or Oman. Most candidates could identify a variety of methods used to supply water, but many did not develop their ideas or link different ideas. The best answers focused on three different sources such as rivers, reservoirs and aquifers, and described how the water was treated and moved to where it was needed.

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Paper 0460/13
Paper 13

Key messages

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

- Ensure that the examination rubric is followed correctly, answering 3 questions, one from each section.
- Select the three questions with care. Read them all through and study the resources provided with them before making a choice.
- Answer all parts of the three chosen questions and ensure that sub-questions are not missed.
- Read the questions carefully. If it helps to do so, underline command words and words which indicate the content and context of the question.
- Respond in the correct way to command words used in questions, in particular, 'describe', 'explain' and 'compare'.
- Identify the correct focus specified in the question stem – e.g. causes or effects/impacts, risks or how they are being managed.
- Ensure that they respond correctly to key words and learn the meanings of geographical words and phrases in order to be able to define and accurately use geographical terminology. When defining words or phrases, candidates should not simply repeat a word or words as part of their definition.
- Understand the skill of how to describe a distribution from a map.
- Use the mark allocations and answer space provided in the question and answer booklet as a guide to the length of answer required and the number of clear points that need to be made.
- Write as clearly and precisely as possible avoiding vague, general statements.
- Write in full wherever possible, especially in the final two parts of each question, ensuring that ideas are developed with the correct focus.
- Perform basic skills using diagrams, graphs, photographs and maps of various types, referring to them in an appropriate way to support ideas rather than directly lifting material from them without any interpretation. Practise the skill of describing features or characteristics from a photograph.
- Ensure that direct use is made of a figure if the rubric of a question requires candidates to do so.
- Have a range of case studies so that appropriate ones can be chosen for the topics tested.
- Ensure that each case study used is at the correct scale. The syllabus identifies the scale required for each case study. Local examples often made good case studies.
- Avoid writing a long introduction to any question (e.g. to provide locational or background information) at the expense of answering it in detail.
- Develop points and link ideas wherever possible in case studies and include place detail.
- Write in detail and develop ideas in **(b) (ii)** questions where development marks are available.
- Give an overall trend when describing a graph or map (if appropriate) and then provide more specific detail.
- When using the extra pages at the back of the question and answer booklet indicate that the answer is continued and clearly show the number of the question on the extra page. Try to continue answers on the specified continuation pages rather than inside the answer booklet.

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. Stronger candidates performed very well across the paper and some excellent Geography was seen. Most candidates were able to make a genuine attempt at their chosen questions. However, weaker responses were characterised by an apparent difficulty in interpreting questions and inclusion of irrelevant material. Candidates seemed to have sufficient time to complete the paper.

Most candidates followed the rubric by selecting a question from each section as required. Occasional rubric errors were still seen and a reminder to candidates to answer one question from each section would be helpful.

Questions 1, 4 and 6 were the most popular questions within each section. There were good answers seen to all questions, including those requiring extended writing, particularly the case studies on problems caused by a dependent population, strategies to reduce the impacts of urbanisation, formation of an ox-bow lake and the causes of deforestation. High quality answers in these case studies were characterised by developed ideas with clear place detail or good use of a diagram as appropriate. Weaker responses tended to be generic developments of ideas with little place detail to support them, whilst other responses were characterised by the use of simple, brief statements. In some cases a significant amount of detail included by candidates was not relevant to the question being asked, and sometimes long introductions occupied much of the answer space. An area for improvement for many candidates would be maximizing the marks scored on the part c questions.

Case studies require place specific information to allow access to the highest level. This requirement can vary between questions – a country (**Question 1**) or an urban area (**Question 2**) or an area of tropical rainforest (**Question 4**). Some candidates do not carefully consider their choice, limiting their mark by inappropriate choices. Where an 'area' is required, choosing a country usually tends to be unacceptable as this is likely to be at too large a scale.

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

Comments on specific questions

Question 1

The majority of candidates answered this question.

- (a) (i) This question required candidates to make use of Figure 1.1 only to define optimum population. Where candidates did so, their responses usually gained credit through an appropriate link to GNP per person. Where candidates did not follow the rubric of the question, their answer generally did not gain credit.
- (ii) This question was well answered and candidates generally performed well. The majority of candidates correctly included the relationship between population and resources and included both to give appropriate definitions for under-population and over-population, making impressive use of the resource provided.
- (iii) Most candidates were able to offer some explanation as to why countries become over-populated although only the best responses clearly identified the role of birth rates, death rates, immigration and/or resources. Some responses deviated from the point of the question and gave several reasons to explain high birth rates or low death rates without giving an overall answer to the original question.
- (iv) This question was answered well with candidates showing a good understanding of the problems caused by over-population. A good range of mark scheme responses was seen. In answering such questions vague statements should be avoided such as references to "traffic" rather than "traffic congestion" or "lack of services" rather than a reference to pressure on specific services such as health and education. Any reference to 'pollution' should always be specified.
- (b) (i) This question was well answered, with the majority of candidates being able to correctly interpret the resource to identify three ways in which Canada could reduce the impacts of over-population. Answers that did not receive full credit lacked explicit use of the resource and had not taken full account of the rubric instruction to use "Figure 1.3 only" or had missed key words and phrases from their answers.
- (ii) Candidates were able to identify that countries with large areas of land may have a large population and went on to develop the idea to suggest a suitable reason to explain the large population. Candidates did not always include a reference to resources which is required for a full and balanced response to a question which relates to under-population.

- (c) A wide range of appropriate examples (UK, Japan, Italy) were seen and responses included references to both young and old dependant populations. Answers which focused on old dependants tended to be more detailed. The best responses showed very good knowledge and understanding with clearly developed ideas, substantiated with relevant place specific knowledge. Sometimes, the focus of the question was incorrect and responses focused on the problems caused as a result of over-population.

Question 2

Far fewer candidates answered this question than **Question 1**. Candidates in general performed marginally better on this question than on **Question 1**.

- (a) (i) This question was more challenging than expected. A significant number of candidates did not produce a precise definition, referring to the growth of the urban area rather than an increase in the proportion of people living in the urban areas.
- (ii) Most candidates answered this well and correctly interpreted the resource to answer both questions correctly. The only issue was that some candidates did not identify that it was over 75% – they had not made correct use of the key provided.
- (iii) There were mixed responses to this question and the skill of describing a distribution is something that would benefit from greater practice. Most of the mark scheme points were seen with correct identification of the fact that the cities are mainly in LEDCs, coastal and a lot are found in Asia. Many candidates scored 1 or 2 marks on this question but few scored all 3 marks. The “overall trend” mark scheme point is a straightforward one to access but is not always present in responses.
- (iv) This was generally well answered and candidates were able give reasons for the rapid growth of cities relating to push and pull factors. Most candidates avoided repeating push and pull factors which has characterised responses to similar questions in previous years examinations. Most answers were migration focused and few included references to birth and death rates.
- (b) (i) The best responses made clear use of the photograph resource and compared the locations of the squatter settlements X and Y. Some responses did not gain credit as they did not offer comparison.
- (ii) This question was well answered and candidates demonstrated a sound knowledge and understanding of the problems faced by people living in squatter settlements. Development was often seen and there were some detailed responses showing a wide variety of mark scheme ideas.
- (c) Candidates were able to select either an MEDC or LEDC context here and most gave an appropriate example of a named urban area. This question was generally well understood. There were some very well developed responses, particularly detailed when referring to strategies to overcome the problems of living in squatter settlements, urban sprawl and traffic congestion. Some answers were written in simple and generic terms, did not sufficiently develop their description and therefore, did not access Level 2. The best answers included clear place specific detail such as named parts of the urban area or named schemes.

Question 3

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

- (a) (i) Whilst some very good definitions were seen, candidates were not always able to give a precise definition of the term *drainage basin* and would benefit from greater knowledge of the correct definitions of key terms.
- (ii) There were some good responses here where candidates were well prepared and could correctly identify the processes from the diagram. Some candidates found it more challenging than expected to be able to name these terms. Knowledge of key terms and being able to accurately define them should remain a focus for centres as preparation for this examination.
- (iii) There were some good responses seen for both parts of this question where candidates had clearly understood the idea of variation and made reference to a range of mark scheme ideas. This

question differentiated well and the most able candidates were able to make the links – for example, between seasons and the amount of vegetation/transpiration.

- (b) (i) Some candidates made good use of the photograph to offer three differences and there were accurate comparisons relating to slope and sinuosity. Some candidates found this question challenging and did not offer an answer that compared the two photographs. Candidates also made reference to expected differences that were not visible from the resource such as velocity.
- (ii) This was well answered and most candidates showed a reasonable level of knowledge about the processes of transportation. There were many responses which gained full credit. Sometimes, an incorrect link was made between a key term and definition and greater precision in the knowledge and use of key terms remains an area for improvement for some candidates. There was some confusion with the processes of erosion in the weaker responses.
- (c) There were some very accurate explanations of the formation of an ox-bow lake with a clear sequence evident and good use made of appropriate key terms. Many candidates produced very good responses, enhanced by a diagram that helped to display their understanding of the processes. There were some excellent diagrams with very clear annotation provided. Most candidates were able to gain credit as they understood the question and were able to present some simple ideas to explain the formation of the feature. Some candidates confused where erosion and deposition took place on a meander or did not show sufficient understanding of the role of erosion as well as deposition. Good practice in answering a question such as this is to describe the process as a step by step sequence making fluent use of correct key terms.

Question 4

This was more popular than **Question 3** and was answered by a significant number of candidates. The overall performance on this question was not quite as good as **Question 3**.

- (a) (i) Some candidates correctly identified the position of hot deserts but unfortunately, there were mixed responses to this question. As a topic, “hot deserts” does not seem to be as secure as other topics with candidates.
- (ii) Responses to this question were better and most candidates answered this well, correctly identifying how rainfall and temperature range vary between the two climates. Some responses did not effectively compare and therefore did not gain credit.
- (iii) This question was not well answered and candidates did not seem to have detailed knowledge of how latitude or atmospheric pressure influenced climate. There was slightly more secure knowledge of Equatorial regions than hot deserts.
- (iv) The best responses to this question show good knowledge of how distance from the sea and wind direction influences the desert climate. Weaker responses tended to be vague and lack correct use of key terms. There were incorrect references to rain shadow and ocean currents which the question does not ask for.
- (b) (i) This question was better answered and some good use was made of the resource. Responses that were not based on the photograph were not relevant and therefore did not gain credit.
- (ii) Candidates were well prepared for this question. They were able to offer detailed explanations and developed their ideas well. There was good use made of key terms and a wide range of mark scheme points included.
- (c) The best responses were characterised by well-developed reasons to explain the causes of deforestation. A range of reasons was usually included. Weaker responses tended to list simple ideas without making the link to explain why this caused deforestation. Some candidates focused upon the impacts rather than the causes, focusing on the wrong context for the question, and these points were therefore irrelevant. Candidates seemed to find this question more challenging than expected.

Question 5

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

- (a) (i) This was well answered and a significant number of candidates identified the correct land use.
- (ii) This again was well answered with most candidates correctly identifying the reasons for cultivation in Area A and B. Some candidates lost a mark because they gave the same reason for A and B – the question clearly asks for “different reasons”.
- (iii) There were some very perceptive answers here that gave the full range of mark scheme ideas. Most candidates were able to gain credit and the most common ideas were relating to farmland being destroyed and farmers not being available to work on the land. Generally, candidates performed well on this question.
- (iv) Candidates found this question more challenging. The best responses understood that the focus of the question was political and economic factors and successfully made the link to food shortages. Some candidates included further references to war despite the instruction in the rubric to include “other” factors. The strongest responses made reference to lack of government investment in agriculture, a focus on cash crops and lack of a distribution network for aid.
- (b) (i) This question differentiated well. Some very good use was made of the photograph to identify the land use. Weaker responses tended to include a reference to rice/crops but did not go much beyond this idea.
- (ii) This topic tends to be well understood and there were some accurate and well detailed answers that showed the full range of mark scheme ideas. Weaker responses tended to include fewer ideas – mechanisation, fertilisers and pesticides were the most commonly seen answers. Sometimes, there was a lack of precision in key terms and an incorrect reference to increasing the amount of land available. Some answers did not correctly focus on the area of land shown in Figure 5.2 and included references to irrigation and terracing, strategies that had already been carried out.
- (c) The best responses to this question clearly identified a type of farm or agricultural system in a named area, described the land use and offered clear explanation for the land use. Weaker responses tended to describe processes rather than land use or did not include explanation for the land use they were referring to. Those who did offer explanation, tended to achieve Level 2 or above by reference to the climate, relief or soil. A few very impressive answers linked land use to specific climatic regions by quoting data about temperatures and precipitation. Stronger responses made good use of local case studies.

Question 6

This was a popular question. Candidates who attempted this question performed better than on **Question 5**.

- (a) (i) This was very well answered and mostly correct. There were some incorrect references to refined products such as petrol.
- (ii) This was very well answered with most candidates gaining full credit. Candidates had followed the rubric and made good use of Figure 6.1 to answer the question.
- (iii) This was well answered with most candidates being able to correctly identify the link between the ice melting and global warming. Many candidates gained 2 or 3 marks here for explaining the process of global warming. Some occasional incorrect references to ozone layer depletion still exist.
- (iv) This question differentiated well. There were some excellent responses about loss of habitats and species and the impacts of flooding of coastal lowlands caused by a rise in sea level. Common errors did not explain how the rise in sea level would cause problems for either people or the natural environment or they were vague (for example: “flooding”). Many responses assumed that inundation of the land would be so rapid that it would cause numerous deaths rather than looking at the more likely impacts of this such as the loss of cultivable land or land for settlement.

- (b)(i)** This was well answered with most candidates correctly identifying a period above and below average. The more straightforward mark for the overall trend was less frequently seen and this may be something that centres wish to address.
- (ii)** There were mixed responses here and candidates found this question challenging. The strongest answers made clear reference to a wide range of economic activities and showed good development of ideas. Weaker responses either incorrectly focused on impacts or had not really fully understood the question. Most candidates were able to gain credit for simple ideas relating to deforestation and overgrazing but did not seem to know the appropriate content to answer the question much beyond these ideas. On the whole, the topic of desertification could be better understood.
- (c)** The best responses made good use of appropriate and very specific activities such as tourism or mining in a clearly identified area and candidates were able to write accurate descriptions of strategies to manage environmental risks. The best responses were clearly focused on the management of risks to the environment and had correctly interpreted the question. Generally though, this question was not as well answered as some of the other case study questions. There were some inappropriate examples given of economic activities and an incorrect focus on the impacts of economic activity rather than how these risks are being managed. Many candidates produced an overlong answer about risks with a brief and simplistic mention of management at the end of the answer. As a result, these answers were unable to access Level 2. There were some incorrect references to countries which limited answers to 5 marks due to an inappropriate example.

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Paper 0460/21
Paper 21

Key messages

- Good answers focused closely on the questions asked and were often very concise.
- There was some confusion regarding the different meanings of the command words such as *describe*, *suggest* and *explain*.
- Candidates sometimes spent insufficient time studying the resources in the questions.
- Candidates did not gain marks by simply copying figures or information from the resources in the questions without interpretation.

General comments

A variety of standard of responses were seen to this paper. Most candidates answered the questions within the spaces provided and avoided the use of additional sheets. Almost all candidates were able to complete the paper in the allotted time.

Comments on specific questions

Question 1

- (a) Almost all candidates correctly identified the features in (i) and (ii). Very few, however, appreciated that, in (iii), the height of contour C was 1200 m, with almost all candidates incorrectly stating 1208 m, the height of the nearby trigonometric point. In (iv), most candidates correctly stated the required grid reference (648509).
- (b) Most candidates answered both (i) and (ii) accurately.
- (c) There were mixed responses in this section, but the majority of candidates attempted to complete the cross-section in (i) though not always accurately. Most labelled Voldalen in (ii) correctly but fewer labelled Midtvola correctly in (iii).
- (d) Most candidates understood the meaning of *relief* and made a good attempt at this question, often scoring full credit. Many referred to the *highland* or *mountains* and *steep slopes* between 1200–1560 m and some recognised that there were *several summits*. Only a few spotted the *many, small, V-shaped valleys* and the *spurs* or *ridges*.

Candidates found this section more difficult and most attempted it with often long and repetitive answers. In (i), the best answers made general comments noting, for example, that the forest and cultivation tended to be *on lowland* and *in the valleys*, and *mainly in the NE*. Only a few observed that the cultivation was also *within the forest*, and on *gentle* slopes whereas the forest tended to be *on steeper land*.

In (ii), the most concise answers mentioned that the roads were on *low* and *gentle* land. Only a few made reference to the valleys in any way. Some candidates included features such as settlements and water features which were not relevant.

As both questions in (e) were *describe* questions, no explanation was necessary. Some candidates did not use the whole map in this section.

Question 2

- (a) Most candidates gained full credit,
- (b) Almost all candidates correctly stated *Kuwait* or *Saudi Arabia*.
- (c) Many candidates recognised the positive correlation between the population density and rainfall shown on Fig. 2.1 and Fig. 2.2 for one mark. A further point was needed to gain the second mark and merely quoting population and rainfall figures without interpretation did not score. A comment such as 'those areas with less than 100 mm rainfall tend to be sparsely populated' did, however, gain credit.
- (d) Whilst the positive correlation between the population density and relief shown on Fig. 2.3 was not so strong, many responses did recognise this. Further credit could have been gained by a development such as 'areas over 2000 m have more dense population' or by quoting the exception of the 'densely populated lowlands around the Caspian Sea'.

Question 3

- (a) (i) In part (i) there were varied responses though the majority recognised the correct response of **A** and **B**. **F** and **E** were also given credit.
 - (ii) Many candidates misunderstood this question and few made good use of **Fig. 3.2**. Most commonly, where credit was awarded, candidates recognised that the velocity was higher in deeper water and on the outside of the bend but few made reference to the bed, surface and banks. A large number described the variation in velocity along the long profile of a river which was not relevant here.
 - (iii) Most candidates scored this mark, although some did not remember to label the arrow as required.
- (b) Only a few candidates scored full credit here for landforms commonly associated with rivers. Of the three, *levées* was most frequently correct in (iii) but with many variations in spelling.

Question 4

- (a) Many candidates found this question difficult and wrote long answers including explanation of processes which was not required as the command words were *identify* and *describe*. Most candidates identified the *cliff* and *beach* but few described much more than these. Marks were given, for example, for noting the *collapsed area*, the *red rocks*, and the *boulders that had fallen*.
- (b) Candidates generally did better in this part of the section with many gaining full credit. The better answers referred to the actual photograph and not just the candidates' notes on coastal processes.

Question 5

- (a) Almost all candidates correctly stated *Kilosa*.
- (b) Again, almost all candidates correctly completed the graph with a few failing to complete shading and therefore not gain credit. A small number omitted the question completely.
- (c) Most candidates recognised that the improved breeds gave higher milk yields for one mark, but few developed the idea further for the second mark. Many quoted the figures from **Table 5.1** but without interpretation, these did not score. Some candidates did not understand the idea of milk yield per cow per day.
- (d) (i) There were some good responses here, where candidates compared milk yields and sales, numbers of improved cattle and use of crop remains or fodder crop between Lushoto and the other three villages in order to support the statement. Extracting and copying data from the table without interpretation did not gain marks.
 - (ii) In part (ii), there were some good comparative responses, but candidates found this more difficult than (i) with many scoring a single mark for noting that Mvomero sold least milk. Some candidates did not make the necessary comparisons here and did not make reference to the types of breed in their responses.

Many candidates tried, incorrectly, to add milk yields together and to complete complex calculations which were all unnecessary.

Question 6

- (a) A variety of answers were offered here, with a large number of candidates giving the correct answers of: **Fig. 6.1** *dispersed* and **Fig. 6.2** *nucleated*.
- (b) Many candidates described the photograph, **Fig. 6.2**, without paying sufficient attention to the idea of the *site* of the settlement. In some cases, candidates knew the theory but did not apply this to the actual photograph. In this photograph, for example, the settlement was not by the river but some distance from it and this would have gained credit. The land was *gently sloping* and not *flat*, as stated by many. Very few scripts gained full marks.
- (c) Amongst the suggestions which gained marks, *fishing* was by far the most commonly suggested. *Tourism, forestry, farming* and *quarrying* were also accepted. In almost all cases, relevant evidence was given in the final part of the question.

GEOGRAPHY

Paper 0460/22
Paper 22

Key messages

- In numerical answers candidates should always give the units of measurement.
- Candidates should be familiar with the interpretation of a key to a map, particularly where there is more than one feature on a line in the key, as for group of trees and forest.
- The correct method for giving an accurate grid reference is described in the syllabus and this should be used, particularly when giving the third and sixth figures.
- Where the question demands the use of a resource, evidence from it should be given in the answer. Theoretical answers should be avoided.

Comments on specific questions

There were parts of all questions which many candidates found to be demanding and these are described below. In the physical geography **Questions, 4 and 5**, candidates tended to do either very well or very poorly, perhaps indicating the emphasis given to the topics in teaching.

Question 1

- (a) This question was generally well done, although some candidates did not score maximum marks because they failed to select the correct 6th figure for the grid reference.
- (b) This question saw some strong but also weaker responses. It should be noted that the examiner does not expect absolute accuracy and that where the relief is steep, it is sufficient to plot at 100 m intervals using the thicker contours. Care should be taken with the summit's height and position. The location of the features should be marked so that the labelled arrowhead is close to the section line. A few candidates marked them on the base line and others omitted to identify their arrows.
- (c) Some candidates did not confine their answers to the main area of settlement on the map, as they mentioned settlement in all parts of the extract. Others noted that tourism would have contributed to its growth and let that theme dominate their responses, to the exclusion of other equally important aspects, such as the junction of routes, bridging point and opportunity for work in the industrial area and quarry. Physical reasons for its growth, such as the flatter land and a low position in the valley, were largely ignored in responses.
- (d) The full range of marks was gained in this question. Some candidates limited their responses by not reading the question carefully as they described the whole map, not the valley in the south west shown on Fig. 1.3. Others failed to compare by commenting on differences or similarities between the same feature on either side of the valley. For example, the presence of houses on one side was compared, not with their presence on the other side, but with a different feature such as the presence of a hotel. By asking about roads and settlement first, it was to be expected that they would not be included under land use, but many did, rather than concentrating on the differences in the amounts of forest and cultivation between the two sides. The term *relief* was better understood than in some years, although some included vegetation under this heading. The steep slopes on both sides and higher elevation reached by the north side were frequently described.

Question 2

- (a) The top of the bar was too low for credit on a large number of responses to this question. The remainder of (a) was correctly answered by almost all candidates.

- (b) Responses to this question often gained both marks but some candidates failed to give the high birth rate as the reason.
- (c) More than half the candidates correctly answered *no* to this question but fewer gave reasoning which was sufficiently general, instead writing about individual countries as an example. The final part of the question was usually correct, with *death rate* being the most common response.

Question 3

- (a) Candidates observed the detail in the photographs well and applied their knowledge to gain good marks for both photographs. The majority identified a CBD and were able to give four pieces of evidence shown on the photograph for their identification. Common responses included *tall buildings, high density buildings, much traffic, many pedestrians, adverts or billboards, petrol station and building site*. Those who opted for inner city found this more difficult to justify from the evidence.
- (b) Many candidates noted that the large expanse of flat land and main road access would be favourable for industry to develop and others commented on the possible labour supply in the urban area in the background.

Question 4

- (a) Many candidates confused focus and epicentre and reversed the two. Many candidates thought the diagram in Fig. 4.1 showed a plate margin, rather than a fault. Some still gained credit by knowing that a build-up and release of pressure or tension was involved in the production of an earthquake.
- (b) Stronger answers obeyed the instruction in the question to use Fig. 4.2 and made it clear that, at the time of the earthquake, people would be at home or in bed or that darkness would cause difficulty and that the mud-bricks used to build the homes was too weak to withstand it. Some went far beyond the information in Fig. 4.2 and attributed the deaths to a mudslide.
- (c) There were many incorrect answers of 2000 years ago, instead of more than 2000 years ago.
- (d) The line on Fig. 4.3 was almost always correctly placed. Candidates usually quoted the features for intensity 6, sometimes noting the close proximity to intensity 7.

Question 5

- (a) Many candidates correctly named all three instruments. Many gave an abbreviated version of the names of **B**, **C** was the least well known and the incorrect answer of hydrometer was almost as frequent as hygrometer.
- (b) The majority of candidates correctly answered *west* or *north west* which suggested a great improvement in reading the instrument from previous papers, possibly because the question asked for the wind direction and they answered with what they thought was the direction in which it was travelling. It is to be hoped the success rate would have been so high if the question had asked for the name of the wind direction.
- (c) Only a few candidates failed to state the units but many gave incorrect answers to parts (ii) and (iii) because they read the wrong end of the indices or the position of the meniscus.
- (d) Many candidates correctly answered, *no, because the thermometer readings are different*. Some responses included the incorrect idea that the wet bulb thermometer measures the temperature of the water or that the presence of water remaining in the jar is an indication of relative humidity. Others thought that the relative humidity was 12% or 60%.

Question 6

- (a) A considerable number of candidates gave advantages *for* Kenya, instead of addressing the question asked and referring to the advantages *of* Kenya. Many others had no difficulty in giving three good advantages. The most common correct answers were the coast for import or export and the export market in surrounding countries. Less frequently candidates referred to raw materials within the country or the lakes for water supply.

- (b) When giving a disadvantage of Kenya for the development of manufacturing industry, many candidates found it difficult to make a suggestion based on Figs. 6.1 and 6.2. The most common correct answers identified the long distances between places or the need to import oil.
- (c) Most candidates were able to gain two marks for referring to two of the port or coastal location of Mombasa, crude oil imports, and the lack of need for further transport inland. Some responses included the idea that the ocean would be a good receptacle for waste from the processes which was not credited. Many candidates also suggested that the sea bed was the source of the oil.

GEOGRAPHY

Paper 0460/23
Paper 23

Key messages

- Key words, such as relief and drainage, were not always understood.
- The command words in the questions were not always addressed.
- Paper 2 tests geographical skills based on resources in the questions. Candidates should therefore make full use of the information presented on the paper, rather than relying on factual knowledge.
- With numerical answers, candidates need to ensure that digits are written clearly and that the correct units are given.

General comments

This paper was comparable with previous years, with **Question 2** and **Question 5** being found relatively easy by candidates. This balanced with **Question 3** and **Question 4** which were found to be more difficult. **Question 1(a)** was also relatively straightforward.

Candidates had plenty of time to complete this paper and many wrote full and detailed answers, often making use of the additional writing pages to extend the space. Additional answers were generally labelled clearly and some candidates directed the examiner to the additional pages, which is always helpful.

In contrast some candidates omitted sections, particularly **Question 1(d)** and occasionally the entire **Question 4**.

Comments on specific questions

Question 1

- (a) Most candidates answered correctly: Feature A was a footpath, the height at spot elevation B was 254 metres, C was a state or country road, the building at D was a dominant building and the land use at E was industrial.
- (b) Fig. 1.2 showed a cross section along part of northing 11. Candidates were asked to identify the land use to the east of G, which was forest. The most common error here was to copy the line from the key, 'group of trees, forest'. Candidates then had to use labelled arrows on Fig. 1.2 to show the position of three features. Candidates often scored either all of the marks or no marks.
- (c) Most candidates realised that the Daltveitlva river was flowing from the south east to the north west. Giving a reason for their answer from Fig. 1.3 proved to be very difficult. Many wrote generally about land height but used the hill top spot heights rather than the lake level and contours crossing the river. Other referred to areas downstream, beyond the scope of Fig. 1.3. Very few noted the angle of the tributary or the shape of the contours, forming a V as they cross the river.
- (d) Many candidates scored very well on this question with a focus on relief and drainage. They typically pointed out the *hilly* or *high* land, the spot height of *319 metres*, the *steep slopes* and the *marsh*. There were also marks available for pointing out that there was only 1 small river and that it was flowing towards the south east. Some candidates filled the answer space with comments on land use and a few didn't attempt this question.
- (e) The ferry crossing from Breistein to Valestrandfssen was between 2200 and 2300 metres. Most candidates appear to have measured accurately, but they had not always interpreted the scale

correctly. The grid reference was well answered. Bearings from Breistein to Valestrandsfossen were between 44° and 48°. Many candidates were within this range, while others were just outside of it.

Question 2

- (a) Most candidates plotted the graph accurately, but some lost the credit due to incorrect or omitted shading. Most candidates identified Spain as the largest number of immigrants and correctly calculated the number of immigrants to Spain from Romania in 2014.
- (b) Candidates were often credited for reference to the common language, the difference in income and data to illustrate the difference in income.

Between 2001 and 2014 Romania had become a member of the EU (2007), enabling their citizens free movement into other EU countries, including Spain. All the information to deduce this was given with Table 2.1 and candidates needed to make reference to at least one date, in order to score the mark. Incorrect responses usually referred to GNI figures.

Question 3

- (a) Candidates had to identify Lelystad as having the highest order, with Emmelord and Dronten at the next level down, by completing the table. The most common error was to have Emmelord in the highest position, maybe because it was further north on the map. Some candidates omitted one of the main three settlements and included Urk instead.
- (b) Candidates were told that the land uses in the area were planned and they were asked to describe how the planners had arranged the settlements. Some noticed that Emmelord was in the centre, with the lower order settlements equally spaced around it. Also, that the settlements were largely on road junctions.

Having described the arrangement of settlements, candidates then needed to look at the road pattern. Many just wrote about the motorway, main roads and minor roads in general terms, without considering pattern. There were two aspects of that pattern: radial, with Emmelord as the route centre, and circular, with the ring connecting the circle of minor settlements. A common trait in responses was that they found it difficult to express these ideas and wrote about roads connecting and branching out without making the pattern clear.

- (c) From the map it could be seen that Dronten was closer to the railway, the airport and the higher order shops and services of Lelystad. Many candidates noted at least one of these points.
- (d) Residents from village X would use shops and services in the more distant Lelystad because they would then have access to the greater variety, and higher order, of goods and services available in the more major town. Many candidates had valid ideas, while a few thought that access would be better or wrote about spheres of influence, rather than addressing the question.

Question 4

- (a) Most responses mentioned the arch and the stack or island. Many also included stump and some suggested headland and cliff. Many mentioned the beach, but this was not credited as the emphasis was on erosion. A few candidates wrote out a generic list of erosion features, often linking them through their sequence of formation.

The rock was being eroded due to its lines of weakness or cracks. Few responses mentioned this. Instead they assumed that it was soft rock, which could not be deduced from the photograph.

- (b) Candidates were then asked to describe the beach shown in Fig. 4.2. It was a long curve of gently sloping, yellow sand, with an uneven or rippled surface. Those who stuck to the question found it relatively easy to gain credit but many responses took beach to mean anything in the photograph and so wrote about rocks, vegetation and housing which were not relevant.

Few candidates noted that the coastline in Fig. 4.2 was a bay, with a sheltered low energy environment, while that of Fig.4.1 showed the exposed, high energy environment of a headland. Instead many wrote about constructive and destructive waves.

Question 5

- (a) Fig. 5.1 showed a map of world plate boundaries. Six locations were identified and candidates had to match five of them to the given descriptions. An ocean plate was colliding with a continental plate at E. An island arc was being formed by two ocean plates colliding at A. Two continental plates were colliding at C. Two plates were moving apart at F. Major earthquakes were unlikely to occur at B. This was well understood, and most candidates scored well on this question.
- (b) Fig. 5.2 showed a section of the Earth's crust. New oceanic plate was being formed at the mid-ocean ridge, where the plates were diverging at the constructive plate boundary. The question then moved on to how the new oceanic plate formed. This time it was necessary to refer to the magma, either rising or cooling, though often irrelevant references to subduction were included. Most candidates correctly referred to the action of convection currents in plate movement.

Question 6

- (a) Fig. 6.1 was a world map showing the distribution of factories for a transnational corporation and candidates were asked how this was typical of a transnational corporation. Many pointed out that there were factories in countries all over the world and some also noted the huge number of factories, both in total and within certain countries. A further point was to note the headquarters in a MEDC in Europe.
- (b) A transnational corporation factory brings many advantages for the host country, including employment, with raised standard of living leading to a multiplier effect, improved skills in the workforce, improvements in technology, infrastructure and social facilities, as well as tax income for the government boosting the economy. All of the above points were seen in responses and candidates generally scored well on this question. The most common error was to misinterpret the question and write about the advantages for the *corporation* rather than for the country.

The same error often appeared in part (ii), where the focus moved to disadvantages. Commonly candidates wrote about specific types of pollution, low wages and exploitation of workers. Vague references to pollution without being more specific did not score. Other ideas included the effects of cultural differences, loss of farmland, the fact that the factory could close and the jobs disappear at any time and that the profits would be going overseas.

GEOGRAPHY

Paper 0460/03
Coursework

Key messages

There was an increased entry for the June 2018 session compared with that for the Coursework Paper in June 2017.

It is now well recognised that a proposal should be submitted in advance for approval by CIE, however, there is no need to resubmit this year on year if this proposal remains unchanged. Therefore, with only a very few exceptions all candidate's work followed the route to geographical enquiry. Furthermore, all markers used the generic mark scheme found on page 35 of the syllabus document.

It must be stressed that this report focuses on points where the moderation process could have been a little smoother or where candidates could improve their coursework in order to access the higher grades. Although this report refers to the performance of centres in the June 2018 examination, comments are equally applicable for centres that make their entries for the first time in November 2018 or during 2019.

For centres that have not submitted a proposal, then it is recommended that they do so. It is the main opportunity for CIE to offer advice based on good practice as well as comment on proposals which may hinder a candidate. Provided suggestions are at an appropriate level for those studying IGCSE and the topic is on the IGCSE syllabus, then approval is nearly always forthcoming. Furthermore, for markers who are new to the coursework option or who have already marked this module but feel they need more practice in its application, it is advised that they attend the appropriate course operated by CIE in their country/region

General comments

It was clear that many candidates enjoyed the experience of working outside the classroom and collecting data for themselves. Most centres appeared to have devoted a whole day (or more) to data collection. Their candidates had been well organised into groups, used initiative to collect the data they required, and demonstrated a good sense of purpose.

All studies were of a clearly geographical nature with the number of Physical Geography studies this session moving closer to the number of Human Geography ones. The former are predominantly on rivers or coasts whilst the Human Geography ones tend to relate to tourism, urban land-use or environmental quality. There is no evidence that better marks are scored on one or the other. Nevertheless, it is apparent that those basing their studies on physical models e.g. Bradshaw were more likely to consider them in the analysis/conclusion than those featuring human ones e.g. Hoyt or Butler.

Comments overall

The programme of work for the candidates at most centres was clearly well organised, yet it also allowed individual learners to express themselves. Many centres adopted one or two core hypotheses with another hypothesis or guiding question chosen by the candidate. This invariably produced a good variety and more evidence of individual work. Whilst CIE would by and large, expect data collection to be a collaborative effort, some Moderators commented that for some centres relatively little individuality was displayed; all candidates using precisely the same aims and virtually the same graphs and diagrams. In addition, many candidates targeted too many hypotheses and this often resulted in a 'watering down' of their analysis/explanations, thus denying them access to the higher marks.

We would expect all candidates to adhere to the word limit of 2 000 words, give or take the odd one hundred words. Whilst the majority of candidates do so, there are still a relatively large number of candidates and a few centres as a whole, who write well over this limit. Some studies in excess of 6 000 words were reported.

This is a concern for the Moderators since writing well over this limit often means that a candidate loses focus on the aims of the investigation or has attempted too many hypotheses. Please encourage candidates to declare their word count in future submissions; this should help them to analyse their findings in a more succinct fashion so retaining a clear focus on their investigation aims. Please note that where text is placed in tables, this also counts towards the word limit. At present, there is no penalty for exceeding the word limit, but this is under review, and there is no guarantee that this may change in future sessions.

Moderators reported that most centres applied the mark scheme consistently and for most any adjustments made were minor. These changes were largely from 45 marks upwards. Below this figure, most markers were very accurate. On the whole *Knowledge with understanding* and the *Conclusion* were adjusted negatively, while *Organisation and Presentation* was adjusted positively. One or two centres had to be adjusted quite markedly, but these were usually centres which were new to the moderation process and detailed reports were written to explain why.

Although a good balance was achieved by most candidates between the assessment criteria, there was still a sizable number whose introduction was too long. The description of the methodology could also have been pruned; when part of an extensive data collection exercise, it is only necessary to describe those methods which are linked to a candidate's own hypotheses. In these cases the analysis and the conclusion were often too short.

Some markers should once again be reminded that the criteria of *Knowledge with understanding* does not just apply to the introduction. A higher level of understanding is thus shown when theory is applied in the *Analysis and Conclusion*. Urban models of land-use for instance, were often dealt with at length in the introduction, but many candidates failed to return to them in any depth to help explain patterns in their data. Background information was usually appropriate in content, although often disproportionately long. Glossary definitions could be dispensed with for example, or at least be limited to those relevant to the two or three hypotheses to be tested. Similarly much of the local information e.g. historical information about the study area, adds little to the aims of the investigation. High level responses however, did link the geographical theory to the aims of their study and these links formed a clear focus which helped to demonstrate their clear understanding of their aims and geographical ideas. Candidates are becoming stronger at justifying their hypotheses, rather than just listing them. This gives them a clear focus on the reasoning behind their data collection. Unfortunately, this is not the case with the locations chosen for study. Even if these locations are selected by the centre, one would expect some reasons for their selection even if it was as simple as, 'These were the only locations which were not on private land and thus were the only ones accessible to us', when explaining the sampling points on a river.

Most centres ensured that more than enough data was collected on a variety of parameters and from a range of sources, in order for each candidate to select only that which is appropriate for his/her own hypotheses. The methodology of the data collection is increasingly being written up in tabular form. This often includes some evaluation of the data collection methods. However, it often occupies too many words and can be trimmed to only include methods relevant to the hypotheses being tested. Data collected as part of an exercise involving the whole class tends to work much better than sending candidates out in pairs to collect data on their own. A much larger quantity of data can be collected allowing statistical testing if desired. Data from at least 50 questionnaires helps give the data statistical validity but is not easy to achieve by one or two small groups. Quantitative data rather than qualitative data tends to work best, readily allowing graphical presentation. The descriptive write-up of a few interviews will be unlikely to provide for sufficient depth in the *Analysis*. Secondary data should only occupy a subsidiary role although may be essential for comparison purposes, for example in a study with an historical element, candidates continue to score well in the *Observation and collection of data* criterion and this was generally marked accurately. It is noted that fewer centres are choosing less than the recommended 6–10 sites for a river study, although it is important that safety elements are not compromised to achieve enough sites or to cover the whole course of a river. One further weakness in many studies is the failure to justify the method of sampling.

The criteria *Organisation and Presentation* tended to be a little undermarked. Many candidates provided some elements of sophistication in their presentation which warranted the higher marks in Level 3 instead of the lower marks. Isolines, choropleths, beach profiles or river cross-sections, and bars or pie charts located on an base map would be examples here. Another might be a number of appropriate and well annotated photographs. A correctly worked example of Spearman's Rank Correlation, for instance, would also qualify as a complex technique. Candidates should be told however, that photographs need more than just a title and cross sections of a river/beach profiles should be drawn to the same scale to facilitate comparison; it is one thing to use a complex technique but another to ensure that it effectively displays the data. There has been, however, some improvement in basic presentation skills such as titles, keys, scales and the provision of north arrows, but this is still variable both between and within centres. There is an overreliance on internet

sourced maps or satellite images with often little or no customisation to the study location including a lack of a scale. There is also a tendency to overuse the term 'not to scale'. Some scanned images are not legible and thus add little in value to the study. This is also the case when several types of graph are used to present the same variable. Some of the best maps and graphs were hand drawn. Most centres followed the recommended structure for their studies including tables of contents and page numbering. In some cases however, the page numbers did not match those in the former, especially when a candidate had for instance, added an extra piece of text or graph. Most, but not all centres are encouraging their candidates to integrate their data presentation with their analysis.

The *Analysis* continues to be the weakest area of study for many candidates, and a criterion which can be overmarked. It should take up more of the word count than any other section, although of course it is quality, not quantity that is the most important. The better studies tended to analyse each chart or graph as they appear in their work, rather than waiting until the end. This had the added benefit of ensuring that all data was analysed sufficiently and this tended to help candidates draw conclusions at the end. These studies used data values effectively, manipulating their data to support their descriptions including anomalies which had been highlighted, for instance on scatter graphs. There was a preponderance of description rather than explanation. Again some purely descriptive accounts were overvalued by markers within mid Level 3. There should overall be much more focus on developing explanations. The best ones were based on theory and linked to specific site characteristics. Too often however, explanation was, brief, tenuous and rather speculative e.g. 'It may have been a soft rock' or 'It may have been a busy day'. Anomalies were often dismissed as resulting from bad data collection techniques. The use of statistical techniques as part of the *Analysis* continues to grow and is not solely limited to Spearman's rank correlation. In most cases it is a positive addition to candidate's studies. However, when incomplete it tends to reveal a lack of understanding in its purpose. In particular, when the calculations are done by computer and only the results are listed for example, a series of correlation coefficients are given without the workings, or without explanation of their meaning. In addition, there is often a lack of significance testing of the results.

Many conclusions are still too short. Candidates are now well versed at linking their conclusions back to, as well as giving a verdict on, each of their hypotheses. However, each conclusion should be backed up with key evidence and in an increasing number of cases this has been absent. This evidence is usually selected numerical data, although can be reference back to stated characteristics shown on figures such as graphs, maps or tables. Reference to theory linked to the hypotheses and which was outlined in the introduction, was rather limited especially in studies which made a comparison with the various urban models. On the other hand the evaluation was considered in many cases to be very strong with most candidates making positive attempts to identify issues and suggest possible remedies should their projects be repeated. This in particular, referred to the methodology, with some evaluation appearing in the last column of methodology tables as well as at the end of the study. The *Conclusion and evaluation* criteria were not always assessed accurately by markers. Conclusions with little or no supporting evidence should not score highly in L3, even if the evaluation was very strong.

Administration

In almost all the samples were sent in good time to CIE, some well before the deadline of 27th April. Most of the paperwork was completed accurately and included with the sample. It is important that the completed Coursework Assessment Summary Forms are included for all candidates and not just for those in the sample. Candidates should always be listed in candidate number order. In most cases the sample included an appropriate number of scripts representing a fair cross section of the marks awarded (to include the top and bottom of the mark distribution).

As was stated in last June's PERT, that there are still quite a few instances where errors in the paperwork have been reported. These usually took place in one of the following instances;

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

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

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

Finally, many thanks to markers who have made comments on scripts to justify the level of marks awarded. This is very helpful, and, points made have, by and large, reflected the candidates' level of attainment well. If markers have not done so before, they can make comments on the actual studies (in pencil) to justify the marks/levels awarded for each of the assessment criteria. The wording should reflect the wording/phrases used in the generic mark scheme, and this will then aid the smooth running of the moderation process.

GEOGRAPHY

Paper 0460/41
Alternative to Coursework

Key messages

Every examination is different but there are usually a few generic tips and key messages that need making that should improve candidate performance in future. Most of these have featured in previous reports but the same issues do keep coming up again despite the entry being a fresh batch of candidates with several new centres. Here are a few key messages that the Examiners feel will benefit future candidates if they are passed on by teachers:

- When answering hypothesis questions that ask whether you agree or not, always give your opinion first before any supporting evidence. This will usually be Yes, No or Partially/To some extent. If you are asked to support your decision with data then statistics must be used from the resources referred to. Data is quantitative; evidence can be qualitative or quantitative. If you make an incorrect conclusion to the hypothesis you will gain no credit for the answer.
- When giving figures in an answer always give the units if they are not stated for you.
- Read questions carefully and identify the command word e.g. *Describe*, *Explain*.
- When asked to compare, make judgements e.g. *higher*, *lower*, rather than just list comparative statistics.
- If comparing statistics, it is important to use paired data rather than one set on its own.
- Check you are using the resources that a question refers you to, e.g. *Support the conclusion with evidence from Table 1.1, and Figs 1.4 and 1.5*.
- Attempt all completion tasks on graphs, tables or diagrams – not all the answers are on lines and in writing. Many candidates are missing out on relatively easy marks by not attempting these questions.
- Take into account the marks awarded. Examiners do not expect you to be writing outside of the lines provided so do not write a paragraph when only two lines are given – this wastes time.
- If you have to write more than the lines allowed indicate this with a phrase such as (*continued on additional page*). This is very helpful to the Examiner in finding your answers.
- When completing graph work use a dark-coloured pencil or pen as scripts are scanned for marking and light colours do not always show up. Always shade bar graphs and pie charts accurately.
- When you think you have finished, check that you have not missed a question out. Some questions are hard to find if they are on pages with a lot of graphs or maps. Make sure you have answered the questions on every page. This applies specially to questions where you are asked to complete tables, diagrams, graphs or maps.

General comments

Most candidates found this examination enabled them to demonstrate what they knew, understood and could do. Weaker responses scored well on the practical questions, such as drawing and interpreting graphs and tables, and responses showing higher ability scoring well on the more challenging sections requiring explanation and judgement especially regarding hypotheses. Most candidates answered Questions 2 more successfully than Question 1.

There is less general advice to be given for areas for improvement with this paper compared with others. As there are no choices to make, it is difficult to miss sections out, although some candidates omit graph completion questions which are usually 'easier' to answer. This is an on-going problem from year to year despite it being highlighted in each report to centres. Although there were no significant reports of time issues some candidates do write too much in some sub-sections. They should be encouraged to answer more succinctly and perhaps give more thought to their answers. Most points for teachers to bear in mind, when preparing candidates for future Paper 41 questions relate to misunderstanding or ignoring command words and the use of appropriate fieldwork techniques and equipment. Particular questions where candidates did not score well often related to them not carefully reading the question, for example **Question**

2(f) where some candidates tried to explain the results of the traffic survey rather than describe how they could be collected. As in some previous papers **Question 1(f)** required candidates to suggest a suitable investigation to extend their fieldwork. This type of question is frequently included on this paper and is an area which centres should practise with candidates. However, it is not good practice to develop a series of generic improvements or methodology which may apply to all fieldwork as such suggestions tend to be vague and not worth credit.

Centres should be aware that, although this is an Alternative to Coursework examination, candidates will still be expected to show that they know how fieldwork equipment is used and appropriate fieldwork techniques even if they have only limited opportunity for fieldwork within the centre. For example, **Questions 1(b)(ii), 1(d)(i), 1(e)(i), 2(c)(ii) and 2(f)** focussed on specific equipment and techniques commonly used in fieldwork. Centres are encouraged to carry out basic fieldwork with candidates, especially using simple techniques which can be done on the school site or in the local area.

Comments on specific questions

Question 1

- (a) The focus of this question was on precautions that could be taken by candidates in three different situations. The most common correct suggestion was to situation three where many candidates referred to staying in a group or having a mobile phone. Situation two proved to be most difficult with fewer relevant ideas. Weaker answers included very general ideas about footwear, clothing and being able to swim, which did not gain any credit.
- (b)(i) There was a complete range of marks to this question which required candidates to use their knowledge of different types of wave. The most common answers referred to swash and backwash and material being moved away from the beach. Some candidates repeated words from the question such as 'frequency', 'erode' and 'deposit' in their explanation. Generally words given in a question will not be credited in an answer.
- (ii) This task proved to be challenging for many candidates. Often the candidates referred to a suitable method but did not express their ideas accurately or in sufficient detail. For example, many candidates referred to 'counting waves' or 'see how many waves come' rather than being specific by 'counting waves as they break'. A minority of candidates did not have any understanding of the fieldwork technique and suggested methods such as measuring the depth of the sea or measuring the speed of a float.
- (c)(i) Most candidates calculated the correct average, although some rounded the answer to 14 which was not accepted.
- (ii) Most candidates plotted the measurement accurately. A minority incorrectly plotted the point on the wrong vertical line (the line before 7).
- (d)(i) This proved to be a challenging question for many candidates. They needed to describe a suitable fieldwork method, and although most candidates had some understanding of the required method many answers lacked detail and precision. For example, many candidates referred to placing poles at the edge of the sea and the top of the beach but did not suggest the idea of a transect line. Although many candidates described the use of a clinometer to 'measure the angle' they often failed to explain how this was done. Weaker answers referred to measuring the 'gradient' rather than angle or slope. Also they referred to placing poles 'every X number of metres apart' rather than placing them at the breaks of slope, which was shown on Fig. 1.5.
- (ii) Although most candidates correctly concluded that the hypothesis was true, the question differentiated well. Better candidates supported their conclusion by detailed information about Bervie beach where they related the steeper profile to destructive waves. They then supported this idea with statistics about wave frequency and change in height of the beach. Some candidates failed to give both statistics which were needed to show the relationship.
- (e)(i) This was another question which tested candidates knowledge of a fieldwork method and, as in the previous questions, candidates found difficulty in giving detail or precision in their answers. Many candidates did not appear to be familiar with how to use a quadrat and referred to counting or measuring stones in the squares. Relatively few candidates described the idea of estimating the

different percentages of materials. Candidates did, however, often describe a suitable way to put the quadrat on the beach, either by randomly throwing it or systematically measuring distances of equal length apart.

- (ii) Approximately half the candidates correctly plotted the result on the triangular graph. Weaker responses did not show familiarity with the technique and plotted three separate dots rather than one dot at the point where the percentages met.
 - (iii) Most candidates correctly concluded that the results supported hypothesis two. Many candidates also gained credit for comparative statistics of materials found on the two beaches. The main discriminating factor was the detail of evidence which supported the hypothesis. Candidates needed to elaborate the evidence which was true for Bervie beach, e.g. 'Bervie beach has the steeper profile and is mainly covered by shingle and pebbles'.
- (f) The final section required candidates to think of an appropriate fieldwork method rather than being told the method as in earlier questions. This type of question is always challenging and is a good discriminator. The most common idea was to count litter. However, these answers were usually limited to the idea with little detail of how this could be done. Weaker responses only referred to 'collecting' or 'measuring' litter. Better answers included details about creating an environmental quality index based on different measurement criteria. Other good suggestions described sampling methods and repetition of their method at two or three sites on each beach. Some candidates wrongly suggested counting tourists or carrying out interviews and questionnaires or testing sea water for traces of pollution.

Question 2

- (a) (i) The correct answer of 'bank' was the most common answer, but there were many incorrect buildings suggested. Candidates needed to be accurate in their use of the scale and compass direction, maybe using a protractor to measure 45 degrees.
- (ii) Most candidates correctly identified the three shops from the descriptions provided.
- (b) (i) Most candidates understood that tourists and residents would probably use the same shops. Fewer candidates suggested that any classification would be subjective and depend on the view of the individual candidate.
- (ii) Most candidates plotted the data in the pie graph accurately. Some candidates reversed the order of the sections and thus lost credit even if the segments were correctly shaded. Once again, a graph completion question had a high omission rate of six per cent.
- (iii) Candidates usually agreed with the conclusion that had been made about hypothesis one. Many supported their decision with appropriate data, Stronger responses explained their decision by including words such as 'over half' or 'majority' to score a third mark. Answers which used 'highest' or 'more' did not gain credit as they were too imprecise.
- (c) (i) Candidates often answered this question well. They explained that residents were the people who were targeted in the hypothesis questionnaire. Stronger responses elaborated this idea by reference to the fact that only residents would know the effects of tourism, and it would be a waste of people's time if people other than residents answered the questions.
- (ii) This was a difficult question for many candidates who did not seem to be familiar with sampling by using random numbers. The most common answer which gained credit was a reference to the method being unbiased, which is generic to any suitable sampling method. Weaker responses said that the method was 'easy' or 'quick'. These answers are commonly given but not credited.

- (d) (i)** Eight per cent of candidates failed to draw the two bars. The candidates who answered the question usually plotted the bars accurately. Some candidates did not appear to understand the scale. It is important to realise that scales on graphs will vary and candidates need to check the scale before plotting the data.
- (ii)** The question provided good differentiation. Most candidates correctly agreed with the hypothesis. These candidates usually stated that tourism creates more problems than benefits and supported the idea by use of statistics, usually the total numbers of problems and benefits. Fewer candidates recognised that there were also more types of problems than benefits suggested in Table 2.2. Some candidates wrongly referred to the number of people suggesting problems or benefits. They did not realise that the questionnaire allowed people to make more than one suggestion of problems and benefits.
- (e) (i)** This question was another good discriminator. A variety of different problems were suggested such as tourists being the cause of increased traffic, and other problems caused by the congestion such as lateness to work or school, breathing difficulties and noise disturbance. Other candidates suggested that tourists would hold up traffic by driving slowly or not knowing which road to take.
- (ii)** Many answers were generic or more relevant to large cities than tourist towns which were specified in the question. Many appropriate suggestions were credited such as car parks on the edge of the town, park and ride, more or improved buses, a one-way system and more traffic police. Ideas such as wider roads, number plate schemes, toll roads, congestion charging and 'encouraging' people to walk or cycle or use public transport were not credited.
- (f)** The final question discriminated well. Better candidates realised that their answer must refer to the traffic survey which was detailed in Table 2.3. Therefore the method had to link to the results shown, such as doing the survey at six times in the day and each survey had to last for 30 minutes. The method had to involve counting seven different methods of travel or types of vehicle. More general answers were also accepted such as working in groups at each site and organising the work of individuals within each group. Also using a methodology such as a tally chart or 'clicker'. Weaker candidates merely referred to 'counting cars'. Some candidates ignored the results shown in the table and described a methodology based on interviewing people. A minority of candidates ignored the question instruction and described or explained the results of the traffic survey.

GEOGRAPHY

Paper 0460/42
Alternative to Coursework

Key messages

- When answering Hypotheses questions that ask whether you agree or not, always give your opinion at the start of your answer before any supporting evidence. This will usually be *Yes*, *No* or *partially/to some extent*. Do not just copy out the Hypothesis if you agree with it. It is important to make a decision and state it as well as provide the data or evidence for your choice. Be clear in your decision – expressions such as *'might be true'*, *'could be false'*, *'true and false'* are too vague.
- If you are provided with a decision about a Hypothesis e.g. *partly true* in **Question 2(d)(iv)** – do not then disagree with it and try to justify your view. You need to support the decision made by the students with evidence. Note that if the question requires data as evidence you must give numbers and statistics; descriptive statements will not count for credit. If evidence is asked for, this can include numbers and descriptive statements.
- When giving figures in an answer always give the Units if they are not stated for you. It is also important that your numbers are clear e.g. a 1 can look like a 2; 4 can look like a 9; a 7 can look like a 1, sometimes a 2 looks like a 5. Candidates' writing must be legible; credit cannot be given if the answer cannot be read.
- When shading or completing graphs, use the same style as that provided in the question and make sure a sharp pencil gives a good dark image. Check you understand the scales used and the importance of any plots already provided. If adding plots to complete a graph, these should be in the same style as the plots already on the graph e.g. crosses should be crosses not dots.
- When completing pie charts or divided bar graphs, complete these in the order of the data given and in the order of the key which conventionally will be clockwise on a pie graph and from left to right on a divided bar graph. Make sure your shading matches the key e.g. if diagonal shading slopes to the right, do not draw yours sloping to the left. This was important in **Question 1(b)(i)**.
- If you are referred to data from a Table or graph it is more sensible to use the exact figures from the Table rather than make judgements from the graph.
- When you think you have finished, go back and check that all graphs have been completed; too many candidates lose easy marks by missing out graphs e.g. **Question 2(d)(iii)**.
- Read questions carefully and identify the command word e.g. *Describe...*, *Explain...* A question that asks *'Why?'* requires a reason to be given not a description.
- Check you are using the Resources that a question refers you to e.g. **Question 1(c)(iii)** Fig.1.5 and Table 1.2.
- Take into account the marks awarded. Examiners do not expect you to be writing outside of the lines provided so do not write a paragraph when only two lines are given – this wastes time.
- Make sure you understand how the fieldwork is being carried out e.g. in **Question 1(c)(i)** many candidates did not gain marks for how to use the questionnaire with people because they kept suggesting ways to devise questions to improve the questionnaire which had already been decided. Also in **Question 2(e)(ii)** the question clearly stated that the work for the Hypothesis should be carried out at the 5 sites already used in the question yet many candidates wrote about choosing three sites or several other sites including the source and mouth.
- Be careful in the loose use of terms such as 'majority' when the correct term would be 'highest' or 'most'. The 'majority' must be more than 50 per cent of the statistics being described and is not a term that will be accepted if the data involved are less than 50 per cent.
- It is important that, when you write the remainder of an answer elsewhere, you signal it by writing something like – *'continued on page 16'* to ensure it is seen. It needs also to be noted that too many candidates gave the wrong sub-section number by their extra work this session which made it more difficult to match to their earlier answer and credit correctly. This year, as in 2017, many candidates chose to write long answers and frequently wrote down the sides of the pages or were given separate 4–16 page booklets despite additional pages with lines being provided for this very purpose! As there

are always spare pages at the back of the exam paper, Centres should not be issuing separate booklets for extra work.

General comments

Most candidates found this examination enabled them to demonstrate what they knew, understood and could do. Weaker responses tended to score well on the practical questions such as drawing graphs or diagrams, making calculations and making choices from tables, and those of higher ability scoring well on the more challenging sections requiring judgement and decision-making on Hypothesis choices with evidence and other written answers.

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

Most points for teachers to consider, when preparing candidates for future Paper 42 questions, relate to misunderstanding or ignoring command words, the use of equipment in fieldwork and the importance of experiencing fieldwork – even if is only in the school grounds or simulated in the classroom. Particular questions where candidates did not score well also often relates to them not fully reading the question or missing out graph completion questions. Such failings mean that some candidates do not obtain a mark in line with their geographical ability.

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

Question 1 proved to be slightly easier than **Question 2**. This question focused on the topic of shopping centres in Bangkok, Thailand. It involved high-, middle- and low-order services, different reasons for choosing a shopping centre and identifying spheres of influence from questionnaire responses. A pie graph, bar graph and divided bar graph required completion. Candidates also needed to make judgements about two Hypotheses using statistics as well as applying knowledge and understanding to justify or disagree with them.

Question 2 proved to be slightly more difficult than **Question 1**. This question was about carrying out fieldwork on a local river in England. It required candidates to know how to measure the gradient of a river, to decide whether the data found created a steeper gradient downstream, whether pebble size became smaller downstream and to explain why this took place. They were also asked to suggest a suitable Hypothesis to investigate along a river and to describe a fieldwork method to investigate it. Skills tested in this question included deciding which site had the greatest variation in angle measurements, plotting a point on a line graph, and plotting a pebble length and an average length on a graph. They needed to make judgements from evidence with regard to one Hypothesis; they were told that the students had decided that the second Hypothesis was *partly true* and needed to justify that decision instead of making their own judgement.

Comments on specific questions

Question 1

- (a) This proved a straightforward opening question with most candidates correctly choosing appropriate pairs for the three marks i.e. *rarely/often*; *expensive/cheap* and *far away/close* or words with equivalent meaning. A significant minority thought high-order goods were bought frequently and low-order goods were bought rarely. A few gave numerical answers, some gave examples of the types of goods and a few missed it out completely.
- (b)(i) The majority of candidates were able to draw three accurate plots and shade the sections correctly using the provided key; most gained full credit here. A few plotted in the reverse order and others added to the length of the bar to match the one above. A small number drew their own separate bar graph which gained no credit. The 45 plot was the one that was most incorrectly plotted. A few did not attempt this question.

- (ii) It was crucial the candidates read the Hypothesis carefully as it refers to ‘...numbers...’ not percentages or proportions. Almost all agreed that the evidence supported the Hypothesis and then quoted comparative statistics for the number of high-order goods and services at Central Ladprau Plaza compared to La Villa i.e. 114:7. Stronger responses made good comparisons between the numbers and gained full credit; weaker responses quoted the figures without any qualitative comparisons such as ‘more than’, ‘only’. Many compared the total number of shops and services instead of comparing the different order types. Some also compared percentages and proportions which were not relevant to the Hypothesis.
- (c) (i) The key part of the question referred to ‘...using the questionnaire with people...’ In other words, as stated, the students and teacher had agreed the questions they would use and the questionnaire was provided in the Insert for candidates to see. Despite this, very few candidates gave three pieces of advice that the teacher might have given to the students. Instead many candidates suggested what type of questions to use, e.g. have closed and open questions, have tick boxes, ask them why they are there and how they travelled. All of these ideas were already on the questionnaire. There was also too much emphasis on being polite and variations of this idea; some candidates gave three separate pieces of advice as *be polite, say please at the start and thank you* at the end. Stronger responses gave perceptive answers such as using a sampling method, asking a mix of age/gender, carrying it out in pairs and visiting different areas of the shopping centres. This was one of the least well done parts of **Question 1**.
- (ii) This was a straightforward pie graph completion involving a plotted line exactly at 80 per cent and two shadings using the provided key. Some candidates plotted the line from an anti-clockwise view thereby making it at 55 per cent which was incorrect. It was hard to understand why other plots were not at these two locations but by far the majority did get the two marks available. The horizontal shading was too often seen at a 45 degree angle.
- (iii) Almost all candidates agreed with the Hypothesis but not all compared the main top two reasons for shopping between the two centres; a few compared every reason. The stronger answers did contrast the two reasons in each i.e. *large variety/near work* in Central Ladprau Plaza and *near homes/good value for money* in La Villa using accurate correct paired statistics. Some candidates did compare the reasons but gave no supportive statistics. A few just described the reasons for shopping at one shopping centre and ignored the other. A small number compared the least favoured reasons with statistics which was an odd way to support a Hypothesis which covered the main reasons for people shopping at both centres. It was surprising that some candidates thought the Hypothesis was *partly true* given the evidence provided.
- (d) (i) Almost all plotted 7 correctly although there were a few that did not attempt the question; maybe because there were two genuine zero points on the graphs (monorail in Central Ladprau Plaza and underground train at La Villa), they thought the graphs were complete.
- (ii) This was done well by most candidates who compared different methods of travel between the shopping centres; the better candidates used comparative words e.g. ‘more than...’ as well as giving paired statistics. A few thought the numbers were percentages which they were not. Some grouped the data into public and private transport although there was no evidence provided as to which method was private or public. Specific methods of transport needed comparing here.
- (iii) This was quite well done especially by candidates who gave a full explanation rather than just listed words e.g. ‘weather’ on its own was not credited but an answer that suggested ‘if it was raining less would walk to a centre’ gained credit. Other single words that needed elaboration for credit included distance, money, traffic, access – but overall most did gain good credit here.
- (e) (i) Many candidates chose the correct second row option as the answer. Almost all the other choices were seen as ticked in equal amounts but most knew what a sphere of influence (Sol) was. A few ticked two boxes thereby eliminating the mark for the correct response.
- (ii) By far this proved to be the most challenging question on the paper. Some candidates scored well but the majority failed to gain much credit for their often detailed generic response. The question asked how the students could use the answers to investigate the Sol of the two shopping centres. Candidates who did this well understood that this was a practical question which was basically saying ‘now you know which districts they were from and how far they travelled, how could this information be used to identify the Sol?’.

As geographers they were expected to suggest drawing up tables of data from the **Question 3** and **4** answers then, on a map of Bangkok, locating districts where customers had come from and shading these using a choropleth system. They could also have added flow lines from where they lived and ultimately draw a line around the furthest distances to identify the sphere of influence of each centre. Stronger responses did this, often including a small labelled diagram to show that they knew what a Sol should look like. Most candidates just described what the two questions revealed, i.e. knowing or seeing where they came from and how far they travelled. With this information they stated that you could work out the Sol but few actually described how. Some just described what the Sol was and how it could differ depending on the distance and direction of its customers. This was a disappointing response especially as in **(i)** a large majority clearly knew what a sphere of influence was.

Question 2

- (a)** Most candidates correctly ticked the third and fourth rows although a significant minority made incorrect choices with '*Look at different features along the river*' being a popular wrong choice. Quite a few only made one choice when the question asked them to identify two advantages. A small number ticked three choices which meant that one correct choice was cancelled out by an incorrect one.
- (b)(i)** This question proved difficult for most candidates. Many listed the right equipment required but then described how they would measure the depth, width or even velocity of the river which would not give a gradient measurement. It was important to indicate that the measurement would be taken along the river or downstream; quite a few stated '*across the river*' or '*from bank to bank*'; it was unclear where they were measuring the distance. Although they were told the distance at each site was 10 metres, too many chose a different distance or decided to carry out the work at breaks of slope. A few thought measuring river depth would provide the gradient. Stronger responses did describe where they would place two ranging poles with a distance measured using a measuring tape and then they could use a clinometer to measure the angle by focusing it on the same height on both poles. Quite a few stated that the clinometer measured the gradient; it should be the angle. Many candidates missed a few of the stages out but still scored well by knowing the correct use of the equipment though not necessarily in the correct sequence of its use. This was the third highest sub-section on the paper where no attempt was made to answer the question.
- (ii)** There were some very strong to this question. Stronger responses stated that it would be possible to calculate an average and thereby eliminate the effect of anomalies as well as reduce the chances of errors. Less strong candidates did recognise that Group B could calculate an average whereby Group A may have made a mistake with one measurement only. Weaker answers stated that making more measurements would provide a more accurate result which is not necessarily true.
- (c)(i)** Although most candidates did work out that Site 1 had the largest variation in measurements, all the other possibilities were also seen.
- (ii)** Almost all candidates correctly plotted the average angle at 4 degrees and drew a straight line to the 10 on the horizontal axis; occasionally the latter was not carefully placed. A small number drew lines above or below the 4 degree mark; others just put a dot on the 4 without drawing the line in and there were a few who made no attempt at this easy plot.
- (iii)** It is unusual to have a mark scheme where candidates can make one of two possible judgments about the Hypothesis and still gain full marks. However, in this case as in real fieldwork, some statistics do not always provide one clear-cut answer. Although, overall, the gradient did not get steeper between Sites 1 and 5 thereby requiring a judgement that the Hypothesis was *false*, there was a significant anomaly at Site 3 which able candidates could spot consequently the decision that the Hypothesis was *partly false/true* was also allowed providing the evidence included reference to this anomaly and not just Sites 1 and 5. The majority of candidates chose *false* and recognised that overall the gradient was gentler downstream as it went from 9 degrees at Site 1 to 6 degrees at Site 5. A few candidates were confused by the degrees and agreed with the Hypothesis thinking that a fall in degrees downstream meant it was getting steeper.
- (d)(i)** This was the least successful sub-section in **Question 2**. Selecting pebbles at random does mean that the choice could be biased and also unrepresentative as the student may have just chosen

pebbles s/he likes or chooses them all from the same area. These were popular responses. Many candidates just gave generic or irrelevant responses such as the choice would not be accurate, the pebbles might all be the same weight or shape.

- (ii) The majority of candidates correctly chose the systematic option as the sampling method employed by Group B to collect pebbles at equal distances across the river bed. *Balanced* and *stratified* were the most common incorrect answers.
 - (iii) These were two straightforward plots which were correctly drawn by the majority of candidates however this sub-section had the largest number not attempting the graph work at all. It appears that many candidates look at some graphs and assume they are complete because they have many plots on. This is not the case; Site 2 was missing a plot at 13.4 and an average line at 7.2. There were a few misplaced plots from candidates who did not score well; it is important to carefully check the scales. Some plots were put above the wrong Site number.
 - (iv) Candidates needed to look at the average size of pebbles on the previous graph and explain, using evidence, why the Hypothesis about the pebble size becoming smaller downstream was *partly true*. This required candidates to identify sites where the size decreased e.g. Site 1 and 2 and also sites where it increased e.g. Site 2 to 3. There was also a mark for paired data to support the increase or decrease stated. Stronger candidates did this well often taking the overall Site 1 to Site 5 as the decrease but then recognising an anomaly at Site 3 which produced the highest average size. Weak answers did not identify any sites but just stated that the size increased and decreased. Many quoted individual pebble sizes from the graph that suited their argument; they should have focused on the average to make sensible judgements about the Hypothesis.
 - (v) Most candidates picked up marks by referring to the traditional processes of river erosion that would make pebbles smaller downstream i.e. attrition, abrasion and solution – hydraulic action was not credited as it is not considered a major process in making pebbles smaller. Some candidates explained what the processes did without naming them; a few named attrition and abrasion but then gave the wrong definition to each.
- (e) (i) This sub-section done so well by most candidates. In past sessions asking for a Hypothesis has not resulted in much success but here candidates seemed to know that a Hypothesis should be expressed as a statement or question to be investigated and provided appropriate ones to do with the river's characteristics. Common Hypotheses were related to the width, velocity and depth increasing/decreasing or changing upstream/downstream with measuring the velocity using floats the most popular choice. Inappropriate answers included references to colour change, changes in vegetation, pollution levels or the number of fish changing downstream. There was a significant minority who just gave a topic e.g. *width*, *velocity*, with no Hypothesis stated. These candidates were allowed some credit in (ii) for their method but it was limited to half of the available credit as they had not stated a Hypothesis. Only a few decided to investigate gradient or pebble size which they were clearly told not to choose.
- (ii) Almost all candidates who had stated an appropriate Hypothesis in (i) gained good credit in this question about methodology; indeed stronger responses gave so much detail that they had easily obtained all available credit well before the end of their answer. It was notable that those who chose to use a flowmeter to measure velocity had little idea of how it should be used or how it worked other than putting it in the river and reading the digital display. Candidates who had given inappropriate Hypotheses struggled to describe a relevant fieldwork method; indeed quite a few made no attempt to answer this section if they had not managed to think of a suitable Hypothesis in (i).

GEOGRAPHY

Paper 0460/43
Alternative to Coursework

Key messages

Every examination is different but there are usually a few generic tips and key messages that need making that should improve candidate performance in future. Most of these have featured in previous reports but the same issues do keep coming up again despite the entry being a fresh batch of responses with several new centres. Here are a few key messages that the Examiners feel will benefit future responses if they are passed on by teachers:

- When answering hypothesis questions that ask whether you agree or not, always give your opinion first before any supporting evidence. This will usually be Yes, No or Partially/To some extent. If you are asked to support your decision with data then statistics must be used from the resources referred to. Data is quantitative; evidence can be qualitative or quantitative. If you make an incorrect conclusion to the hypothesis you will gain no credit for the answer.
- When giving figures in an answer always give the units if they are not stated for you.
- Read questions carefully and identify the command word e.g. *Describe*, *Explain*.
- When asked to compare, make judgements e.g. *higher*, *lower*, rather than just listing comparative statistics.
- If comparing statistics, it is important to use paired data rather than one set on its own.
- Check you are using the resources that a question refers you to, e.g. *Support your answer with evidence from Figs. 2.2 and 2.3 and Tables 2.2 and 2.3*.
- Attempt all completion tasks on graphs, tables or diagrams – not all the answers are on lines and in writing. Many responses are missing out on relatively easy marks by not attempting these questions.
- Take into account the marks awarded. Examiners do not expect you to be writing outside of the lines provided so do not write a paragraph when only two lines are given – this wastes time.
- If you have to write more than the lines allowed indicate this with a phrase such as (*continued on additional page*). This is very helpful to the Examiner in finding your answers.
- When completing graph work use a dark-coloured pencil or pen as scripts are scanned for marking and light colours do not always show up. Always shade bar graphs and pie charts accurately.
- When you think you have finished, check that you have not missed a question out. Some questions are hard to find if they are on pages with a lot of graphs or maps. Make sure you have answered the questions on every page. This applies specially to questions where you are asked to complete tables, diagrams, graphs or maps.

General comments

Most responses found this examination enabled them to demonstrate what they knew, understood and could do. Weaker responses tended to score on the practical questions, such as drawing and interpreting graphs and tables, and stronger responses scored well on the more challenging sections requiring explanation and judgement especially regarding hypotheses. Most responses answered **Question 1** more successfully than **Question 2**.

There is less general advice to be given for areas for improvement with this paper compared with others. As there are no choices to make, it is difficult to miss sections out, although some responses omit graph completion questions which are usually 'easier' to answer. This is an on-going problem from year to year despite it being highlighted in each report to centres. Although there were no significant reports of time issues some responses do write too much in some sub-sections. There was evidence in this paper of high question omission rates from *Sections 2(d)(ii)* onwards which may indicate a lack of time. Responses should be encouraged to answer more succinctly and perhaps give more thought to their answers. Most points for teachers to bear in mind when preparing responses for future Paper 43 questions relate to misunderstanding or ignoring command words and the use of appropriate fieldwork techniques and equipment. Particular questions where responses did not score well often related to them not carefully reading the question, for

example **Question 1(b)(i)** where some responses described the location of the rain gauge and **Question 1(d)(iii)** where some responses wrote about rainfall variations.

Centres should be aware that, although this is an Alternative to Coursework examination, responses will still be expected to show that they know how fieldwork equipment is used and know appropriate fieldwork techniques even if they have only limited opportunity for fieldwork within the centre. For example, **Questions 1(b)(i), 2(b)** and **2(d)(ii)** focussed on specific techniques commonly used in fieldwork. Centres are encouraged to carry out basic fieldwork with candidates, especially using simple techniques which can be done on the school site or in the local area.

Comments on specific questions

Question 1

- (a) Better responses recognised that the main reason for collecting data at the same time was to achieve comparability between measurements. Stronger answers also suggested that this would remove the variable of time. However, many responses only referred to 'reliable', 'accurate' and 'fair' which did not explain sufficiently.
- (b) (i) The question differentiated well between candidates. The stronger answers described the sequence from positioning the rain gauge in the ground to collecting rainfall in the bottle and then measuring the amount of rain collected. Some responses were too vague in their description of how rainwater was measured in the cylinder. A minority of responses focussed their answer incorrectly on where the rain gauge should be located, and then give reasons why it should be away from trees and buildings. They failed to change their answer when they realised that these ideas were answers for the next section.
- (ii) Most responses correctly identified the two locating factors.
- (c) (i) This proved to be a challenging question. The requirement to answer in the text boxes rather than on lines maybe confused some of these candidates. Many responses merely explained that a wind vane 'shows the direction which the wind is blowing'. They did not include the important idea that it points to the direction which the wind is coming from. Responses were generally more successful in explaining how the fixed points N, E, S, W would allow the direction to be worked out, although relatively few responses described them as compass points.
- (ii) Many responses suggested a roof or the top of a building as a good position for a wind vane. They also explained that the wind would not be obstructed or blocked at these points. Weaker responses just suggested a position which was 'high up' or a 'high point' which was too vague. Also weaker responses suggested that a rooftop location was good because it could be easily seen or prevent interference from people or animals.
- (d) (i) A significant minority of responses did not attempt the question. Most of the responses who did draw the bars scored full credit. Responses need to plot bars on a graph with precision, as a small minority were too inaccurate in plotting 4.4 mm
- (ii) The question was a good discriminator. Many responses made the correct conclusion that the hypothesis was true. Many responses gained full credit by comparing daily rainfall totals when the winds were from the south and south east with those when the wind was from another direction. Some responses did not give paired data to show the difference but just gave evidence from one direction which did not support their statement. Some responses wrongly suggested that the hypothesis was partly correct because they could identify some anomalies to the general pattern. When making such a judgement candidates need to ensure that they look at an overview of all results rather than disagreeing with a hypothesis because the relationship is not perfect. An error made in a minority of responses was to focus on total amounts of rainfall from different directions, rather than daily rainfall totals.
- (iii) Most responses focussed on variation in wind direction, but some incorrectly focussed on rainfall variations, ignoring the emboldened 'wind direction' in the question. Two simple variations given in many responses was that there were more winds from the south in the current year, and the winds mainly came from the south in the current year and from the north in the previous year. Some

responses did not support their description with relevant data to score a second mark. Some weaker responses mixed up which graphs showed the different years and therefore gave answers which were the reverse of the correct ones.

- (iv) A small minority of responses had mixed up the years shown by the graphs. Some weaker responses still focussed their answer on wind direction rather than rainfall. Generally responses did recognise that rainfall was higher in the current year.
- (e) (i) Most responses identified a barometer as an appropriate instrument to measure atmospheric pressure. The three distractors were chosen by equal numbers of candidates.
- (ii) Most responses used the data well and plotted it data accurately.
- (iii) Many responses showed an understanding that hypothesis two was incorrect because the graph showed a negative correlation between the two variables. Some stated that the relationship was negative whilst other responses described the relationship that rainfall was lower when atmospheric pressure was higher. Responses to this question needed to give two sets of paired data of atmospheric pressure and rainfall to show the negative relationship. Some responses suggested evidence which was too vague to credit such as atmospheric pressure above or below 1000 mb rather than giving exact data from the graph.
- (iv) Responses needed to compare two sets of data in a table to answer this question. Most responses successfully recognised that atmospheric pressure was higher in the previous year. Many then used valid data to show this comparison. Many responses gave highest or lowest atmospheric pressures from the two years. Two errors in data interpretation made by significant numbers of responses were to give a wrong figure for the highest pressure recorded in the month (usually 1008 instead of 1012 in the previous year and 1036 rather than 1040 in the previous year). They needed to study the data table more carefully. Weaker responses often just picked one day from the month to show the difference in atmospheric pressure, which did not illustrate a valid comparison. Good responses counted the number of days when atmospheric pressure was above or below 1000 mb in the two months to give the best illustration of comparison.
- (f) Many responses scored well on this final section. They described the difference in temperatures when the winds were generally from the north and south and supported these ideas with relevant data. The most common data comparison was between highest and lowest temperatures when the winds came from the north and south.

Question 2

- (a) This was the lowest scoring question on the paper and a small minority of candidates did not attempt to answer it. Most responses erroneously used 'urban' throughout their answer. They needed to refer to a city or suburbs. Responses which referred to the growth of the urban area into the surrounding rural area gained credit for the rural aspect because the term was not used in the question. Many responses did not know the term and referred to pollution, rural to urban migration and counter urbanisation.
- (b) The question was answered well by many candidates. They referred to the pH meter giving a more precise or accurate figure, whereas the water clarity measurement would be subjective and more likely to be measured incorrectly. Some responses made the mistake of explaining why pH was a more appropriate measurement than water clarity rather than considering the fieldwork methods.
- (c) (i) Nearly all responses who plotted the pH value did so correctly.
- (ii) Most responses plotted the depth accurately. The only common error was a small number of responses who plotted the arrow at 25 cm instead of 35 cm.
- (iii) The question was answered well in many responses and proved to be a good discriminator. Most responses made the correct conclusion that the hypothesis was false and explained that most pollution occurred in the newer housing areas. Many responses used comparative pH values between sites one and three to illustrate their conclusion.

- (iv) Although not a high scoring question it did prove to be an effective discriminator. Good responses deduced that expensive housing at site 1 would have better sewage disposal or that the lake would be cleaned. The most common reason suggested in responses was that water in the newest housing area would be polluted by construction materials or waste. However, weaker responses did not explain how the construction waste could get into the lake. Some responses merely described the three areas from the table but did not link the descriptions to sources of water pollution. Other responses wrote about air pollution from traffic on the road, better security at the expensive housing estate and the impact of litter in the three water bodies. None of these ideas were credited.
- (d)(i) Many responses suggested that the results would be based on subjective decisions. The other commonly suggested reason was that the two responses had looked at different parts of the site or different buildings within the site in making their decisions. Some weaker responses did not understand the basis of an environmental survey being conducted by the responses themselves and wrote about 'asking local people' or using a questionnaire.
- (ii) This was a difficult question for many candidates. The most common answer referred to working in groups and discussing the scores or averaging them out. Other popular suggestions were to do the survey at the same time or to survey the same buildings. Whilst many responses were credited for these suggestions they did not give a reason for their suggestion. As in the previous question weaker responses confused the methodology of the environmental survey with that of a questionnaire.
- (iii) Most candidates generally plotted the results accurately. The main error was that a few responses did not draw the horizontal bar from zero.
- (iv) A large majority of candidates correctly identified vandalism or graffiti as having the same score at the two sites.
- (v) Over half the responses correctly calculated the difference in total score. Some responses did not do the calculation but left their answer as '+5 at site 1 and -6 at site 3' which was not credited. Some responses failed to do the maths correctly and calculated either +1 or -1.
- (vi) The question was generally well answered but also proved to be a good discriminator. Most responses agreed with the hypothesis. The main supporting statements either related to the highest environmental score at site one, or the predominance of positive scores at site one and negative scores at the other two sites. Responses found it more difficult to give precise supporting data. The better responses correctly calculated the different total environmental scores for the sites, but few responses compared statistical data from the four main categories in the survey.
- (e) The final question was another good discriminator. Better responses made a variety of creditable suggestions for the positive scores awarded in the environmental quality survey. These included ideas such as no clearance of vegetation, lack of traffic, lack of people, undisturbed habitats and no pollutants entering the lakes. Weaker responses often failed to score because they merely repeated the positive descriptions from the recording sheet.