GEOGRAPHY

Paper 0460/11
Paper 11

Key messages:

In order to perform well on this paper candidates should:

- Carefully follow the examination rubric by answering three questions, one from each section.
- Select their three questions with care. Read them through and study the resource material provided with them before making a choice.
- Attempt all parts of the questions which they select.
- Read the questions with care, taking time to study command words and words which indicate the context of the question. Command words such as 'describe'; 'identify'; 'explain' and 'compare' have specific meanings which candidates need to respond to.
- Take note of the focus in all questions and the context – this could include causes or effects, problems or benefits, people or the natural environment, and local or global.
- Learn the definitions of geographical terms in order to define and accurately use them. When defining terms candidates should not repeat a part of the word being defined as part of their definition but use completely different wording.
- In order to write answers which, contain the appropriate detail and number of points the mark allocations and answer spaces provided in the question and answer booklet should be seen as a guide.
- Give detailed answers wherever possible, especially in the final two parts of each question, elaborating on or linking ideas to answer the question set rather than just including general information about the topic.
- Practise using graphs of different types, tables of data, photographs, text/brief articles, diagrams and maps, making use of the information provided with any maps, such as the compass, scale and key. Graph and map completion tasks should be done with care, using a ruler and sharp pencil to produce the required precision,
- If a question asks candidates to use statistics in an answer full marks cannot be obtained without doing so. However the statistics should be used to justify and support ideas rather than just quoting them in isolation.
- Be able to select an appropriate case study for each topic and include place specific information in answers, avoiding writing a long and irrelevant introduction.
- Be able to explain a process, using labelled diagram(s), geographical terms and correctly sequenced ideas.

General comments:

The examination was considered appropriate for the full ability range of candidates and it differentiated well between candidates of all levels. As expected, the strongest responses showed competence across the paper and good answers were seen to all questions set. Most candidates were able to make an attempt at all parts of their chosen questions, others were less convincing, either in terms of correctly interpreting the questions or in producing detailed, accurate answers. As always success on the paper overall depended on producing high quality answers across the paper, but particularly to those questions requiring detailed answers, such as the last two parts of each question. High quality answers in these sections included developed ideas, with place specific information (if appropriate) or well sequenced references to physical processes.

Most but not all candidates followed the rubric by selecting a question from each section as required and lack of time did not appear to be an issue. Occasional rubric errors were still seen, either when candidates selected two questions within one section or when all questions were attempted. The presentation of answers from candidates was usually acceptable and most were legible. A significant number of candidates

made use of one or more of the continuation pages and most, but not all, carefully indicated which answers were being continued.

Questions 1, 4 and **5** were the most popular questions, though choice of questions was more balanced in ***Section B*** than it was in ***Sections A*** and ***C***.

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

Comments on specific questions

Question 1

This was much more popular than **Question 2** with the majority of candidates choosing this question.

(a) (i) The vast majority of candidates correctly shaded Florida, although at times the shading was not clearly horizontal shading.

(ii) Most candidates placed the states in the correct rank order.

(iii) This question was well answered. Most candidates were able to describe the distribution, particularly that it occurs in the east and west and in the coastal states. Few candidates considered that the distribution is uneven.

(iv) This question differentiated well. Stronger responses considered a range of economic factors, however there were four marks available here and weaker responses did not develop their answers to consider a range of factors and simply considered the availability of work or industry. Candidates need to ensure that they explain four different factors to gain full marks here.

(b) (i) This question was generally well answered with good use made of the resources provided. Most candidates considered the overall impact of relief on population density, however many did not develop their answers by using the resource to give detail about the heights at which sparsely and densely populated areas are found, or to consider exceptions to the general distribution pattern, in this case California.

(ii) This question differentiated well and there were some high scoring answers which focused clearly on the differences shown in the resources and then further developed their ideas to consider the impact of rainfall distribution and temperature and suggested how this might impact factors such as farming and industry. Weaker responses did not focus clearly on the differences, instead generally describing the patterns seen

(c) This case study differentiated well. Candidates need to avoid the use of an overall introduction providing context and instead should concentrate on answering the question set. There was no clear preference for choosing young or old dependent populations. The majority of candidates expressed simple ideas, whilst the strongest responses developed their ideas and described the problems in more detail to achieve L2 and at times L3. A common error was to ignore population structure and so, rather than considering the impact of a high proportion of young or old, instead considered general problems of population growth, which did not receive credit.

Question 2

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

(a) (i) The majority of candidates used the map and key to identify the correct land use.

(ii) Few candidates answered this question well. Whilst leisure activities were often considered, many did not extend their answer beyond this. Candidates need to refer to specific types of pollution, in this case air and visual pollution, rather than referring to pollution generally which does not gain credit.

(iii) Few candidates gained full marks here. Many candidates correctly identified the variation in cost of housing between the two areas, but many then considered shanty town development rather than

noting that this is an MEDC example. Candidates needed to develop their answers with reference to ideas such as types or age of housing.

(iv) This question differentiated well. Most candidates referred to the nearness to the river and the road, however fewer candidates then developed their answers to consider their importance for moving materials and products. Few considered ideas beyond this, such as the possibility of flat land, low cost land or labour supply.

(b) (i) Little understanding was shown as to why the rural-urban fringe shown in the photographs might be developed. Stronger responses suggested reasons such as to provide housing, schools and other services, however many did not appear to understand the question and simply described features shown in the photograph.

(ii) Many candidates were able to consider the positives and negatives of the development and considered simple ideas such as the provision of jobs and housing, or negative impacts such as deforestation. However, there were five marks available here and candidates needed to develop their answers to consider a range of positive and negative impacts to gain full marks.

(c) This was a relatively straightforward case study question, however few candidates focused on the Central Business District, instead considering the urban area as a whole. Where candidates did consider the CDB, they often simply listed a range of shops and services found there, rather than considering key characteristics such as density, accessibility, pedestrian flows, value of land, or order of services.

Question 3

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

(a) (i) Few candidates correctly identified the wave cut platform.

(a) (ii) Many candidates did not describe the features of the coastal landform instead providing explanations as to how it was formed. Candidates need to further develop the skill of clearly describing what is shown in photographs, whether physical or human environments.

(iii) Stronger responses gave a very full explanation of the formation of the natural arch, in particular the development of the cave and the erosional processes involved. However, some candidates could only list a number of erosional processes.

(iv) This question discriminated well, with stronger responses demonstrating a good understanding of differential erosion along a coastline. Weaker responses repeated the idea of erosional processes or continued to explain the formation of arches both of which were required in the previous questions and so did not gain credit here.

(b) (i) Most candidates correctly identified that the coral reefs are found along the coastline, but few developed their description of the distribution beyond this and so failed to gain the three marks available.

(ii) Many candidates understood the question and described the conditions required for the development of coral reefs in detail. Some candidates tended to explain the formation rather than describing the conditions required and so did not gain full marks here. Weaker responses tended to use vague descriptions such as lots of sunshine or warm temperatures which did not gain credit.

(c) There were a few excellent answers based on detailed case studies which gained access to full marks here. However, many candidates did not develop their answers fully to consider a range of attempts to manage coastal erosion, instead just describing simple approaches such as land use zoning, rather than describing different coastal management strategies well.

Question 4

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

(a) (i) Many candidates correctly identified the barometer, although not all candidates were able to do so, with many incorrectly selecting the maximum-minimum thermometer.

(ii) Most candidates correctly read the data for the atmospheric pressure; however, some used the wrong unit of measurement. Fewer candidates were able to give the correct maximum temperature with units of measurement.

(iii) Responses to this question were mixed. Whilst there were some good answers which showed clear understanding of how to use the wet and dry thermometer, many described how it worked rather than how it was used, and so failed to gain full credit here.

(iv) Whilst most candidates attempted to draw a wind vane, their diagrams were not fully labelled and often lacked annotation and so did not fully access the marks here. Some candidates incorrectly attempted to draw an anemometer which measures wind speed rather than direction.

(b) (i) The majority of candidates showed some understanding of how a Stevenson Screen works, particularly the importance of the white colour and it being made from wood. The importance of the legs was less well understood, with candidates suggesting that these were to avoid flooding or interference from animals, rather than to ensure the weather data was not affected by ground temperatures.

(ii) Stronger candidates both described and explained the location of a Stevenson Screen, whilst weaker responses just focused on description, particularly the idea of being away from buildings or trees but failed to develop their answers much more than this.

(c) Excellent answers were based on detailed case studies describing several reasons why flooding had occurred. Specific details included reference to rainfall statistics and referred to other factors, most commonly deforestation and soil erosion. Many candidates however either misread the question and incorrectly described the impacts of the flooding rather than its causes, or simply repeated the idea of heavy rainfall instead of developing their answer further.

Question 5

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

(a) (i) The majority of candidates used the climate graph to correctly estimate the total annual rainfall, the most common error was 3250 mm.

(ii) Most candidates made correct references to the high temperatures and high amount of sunshine, however some incorrectly referred to the high amount of rainfall which would not be an attraction for tourists.

(iii) This question differentiated well. Stronger responses were able to clearly suggest key aspects of the physical landscape which attract tourists, however some responses failed to consider the physical landscape and instead considered the climate, or correctly identified beaches but did not develop their answer beyond this idea.

(iv) Whilst many candidates correctly identified the benefits of job opportunities and profits for business and cultural exchange, many did not develop their answers beyond these ideas. More developed answers considered other benefits to local communities, such as improvements to roads and airports and other aspects of development such as the development of electricity networks and improvements to water supply.

(b) (i) This question discriminated well with some excellent answers clearly referring to the positive and negative aspects of the new hotel's location. Weaker responses did not fully explain why the location they described was good or bad, or failed to consider the disadvantages, such as the need to travel to the airport, or the negative aspects of being close to the fishing boats.

(ii) Many candidates considered some of the negative aspects of the hotel's development for the local residents, particularly ideas relating to litter, noise and traffic, however candidates often did not extend their answers further than these simple points to consider other aspects, such as pressure on water supplies, or the idea that the land could be used for other purposes or potential inflation of shop prices. Some candidates focused on the impact on the natural environment alone, rather than considering impacts on the residents themselves.

(c) Where candidates understood that the question was about the different methods used to manage tourism, they made a variety of valid developed points describing a number of management strategies in their chosen country or area. Some excellent responses considered ecotourism and a variety of detailed strategies. At times however, answers simply listed what tourists would not be allowed to do without clearly describing the management strategies used to achieve this and so did not gain credit. Too often candidates are still giving an unnecessary introduction to tourism in their chosen location and detailing the attractions of their chosen case study or the rise of tourism in the area, which does not gain credit, and also limits the time they have to address the question set.

Question 6

Fewer candidates chose to answer this question.

(a) (i) This question discriminated well, with weaker responses unable to give a clear definition of fossil fuels.

(ii) Most candidates described the clear relationship between coal production and population size; however statistics were not used accurately here, and were either not read accurately, or candidates did not give the data for two years to illustrate the growth.

(iii) Whilst most candidates were able to describe the decline in primary industry, many were unable to clearly describe the changes in the other sectors, particularly secondary industry. Some candidates used statistics rather than describing the trends in the divided bar graphs and so did not gain credit here.

(iv) A variety of answers was seen here. Many candidates correctly identified potential problems such as the fact that fossil fuels are finite and lead to air pollution, however many did not develop their answers beyond these ideas and so failed to access all available marks here.

(b) (i) Candidates needed to look carefully at the resource to identify three clear reasons why solar energy is being developed

(ii) This question discriminated well, with a variety of answers seen. Weaker responses often considered the impact of physical factors, or the cost of setting up or lack of technology and skills, but often did not include more than one of these ideas in their answer. Stronger responses considered a range of factors with detailed explanation, often referring to examples they had studied.

(c) Some excellent responses to this question were seen using a number of different methods with clear place specific detail. However weaker answers tended to repeat the same idea, such as water treatment several times throughout their answer, rather than describing different methods of supplying clean domestic water.

GEOGRAPHY

Paper 0460/12
Paper 12

Key messages

In order to perform well on this paper candidates should:

- Bring a pen, ruler, a sharp pencil and a calculator to the examination.
- Carefully follow the examination rubric by answering three questions, one from each section.
- Select their three questions with care. Read them through and study the resource material provided with them before making a choice.
- Attempt all parts of the questions which they select.
- Read the questions with care, taking time to study command words and words which indicate the context of the question. Command words such as 'describe'; 'identify'; 'explain' and 'compare' have specific meanings which candidates need to respond to.
- Take note of the focus in all questions and the context – this could include causes or effects; problems or benefits, people or the natural environment, and local or global.
- Learn the definitions of geographical terms in order to define and accurately use them. When defining terms candidates should not repeat a part of the word being defined as part of their definition but use completely different wording.
- In order to write answers which contain the appropriate detail and number of points the mark allocations and answer spaces provided in the question and answer booklet should be seen as a guide.
- Give detailed answers wherever possible, especially in the final two parts of each question, elaborating on or linking ideas to answer the question set rather than just including general information about the topic.
- Practise using graphs of different types, tables of data, photographs, text/brief articles, diagrams and maps, making use of the information provided with any maps, such as the compass, scale and key. Graph and map completion tasks should be done with care, using a ruler and sharp pencil to produce the required precision,
- If a question asks candidates to use statistics in an answer full marks cannot be obtained without doing so. However the statistics should be used to justify and support ideas rather than just quoting them in isolation.
- Be able to select an appropriate case study for each topic and include place specific information in answers, avoiding writing a long and irrelevant introduction.
- Be able to explain a process, using labelled diagram(s), geographical terms and correctly sequenced ideas.

General comments

The examination was considered appropriate for the full ability range of candidates and it differentiated well between candidates of all levels. As expected, the most able and well-prepared showed competence across the paper and good answers were seen to all questions set. Most candidates were able to make an attempt at all parts of their chosen questions, others were less convincing, either in terms of correctly interpreting the questions or in producing detailed, accurate answers. As always success on the paper overall depended on producing high quality answers across the paper, but particularly to those questions requiring detailed answers, such as the last two parts of each question. High quality answers in these sections included developed ideas, with place specific information (if appropriate) or well sequenced references to physical processes.

Most but not all candidates followed the rubric by selecting a question from each section as required and lack of time did not appear to be an issue. Occasional rubric errors were still seen, either when candidates selected two questions within one section or when all questions were attempted. The presentation of answers from candidates was usually acceptable and most were legible. A significant number of candidates

made use of one or more of the continuation pages and most, but not all, carefully indicated which answers were being continued.

Questions 1, **4** and **6** were the most popular questions, though choice of questions was much more balanced in ***Section C*** than it was in ***Sections A*** and ***B***.

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

Comments on specific questions

Question 1

This was more popular than **Question 2** with the majority of candidates attempting this question.

(a) (i) Most candidates correctly identified stage 3. The most common wrong answers were Stages 2 and 4, particularly Stage 2.

(ii) The majority of candidates made good use of Fig. 1.1 and correctly compared birth rates and death rates in the appropriate stages. A minority mixed up birth rates and death rates or wrote about the wrong stages.

(iii) This question differentiated well. Some candidates scored one mark only for a general reference to birth and death rates changing whilst the high scoring responses considered what was happening to both birth rate and death rate during each stage.

Many weak responses overlooked the requirement to use Fig. 1.1 only and gave reasons why birth rates and/or death rates changed. Others focused on birth rate or death rate alone rather than considering the changes in both which impact population growth.

(iv) Generally candidates scored well, many gaining high marks. All suggestions from the mark scheme were included in answers, particularly issues relating to contraception, the need for children to work on the land or look after the elderly and issues relating to culture and tradition. Those who lost marks tended to do so due to insufficient different ideas and suggestions rather than errors, however in some cases marks were lost due to writing vague words or statements which needed more elaboration (e.g. culture, religious beliefs, wealth).

(b) (i) Most candidates gained full credit. The most common error was to reverse the order of Tonota and Thamaga.

(ii) Generally well answered by candidates of all abilities giving a range of problems associated with rapid urban growth in urban areas in LEDC's. It was encouraging to see many candidates developing or linking ideas in the mark scheme, especially on employment, water, sanitation, and pressure on services, rather than listing simple bullet points. Some weaker responses wrote about pollution, overcrowding, crime, congestion and lack of resources without giving sufficient detail on any of these for credit.

(c) There was a variety of case studies, with Australia, Canada, Russia, Namibia and Botswana being popular choices. Whilst some excellent answers were seen answers were limited by ideas being stated as superficial points, such as extreme climate or mountainous relief, with little attempt at linking or developing them in relation to how this is likely to dissuade people from residing there (e.g. the inability to produce food or establish communications links). Few candidates included place references. A common error throughout, regardless of the country chosen, was to explain why people moved or chose to live in other areas, rather than explanations of why the area they have chosen is sparsely populated. Many weaker responses mistakenly continued the theme of birth and death rates, often linked to population control policies, or focused on emigration rather than population density.

Question 2

This was not as popular as **Question 1** but a significant number of candidates answered this question.

(a) (i) Most candidates identified 'urbanisation' as the correct answer though a few omitted it.

(ii) Most candidates identified the correct two continents, a minority wrongly gave North America for both answers.

(iii) Answers varied in quality but the most frequent correct impacts suggested were deforestation and its consequence for animal habitats, along with air and water pollution. Common wrong answers included global effects and impacts on people, however marks were also lost by some candidates who write in vague terms about the 'environment being destroyed' or 'pollution' without any form of qualification.

(iv) The question discriminated well. Good answers identified many of the ideas from the mark scheme, especially those related to employment and food production, and the effects on the family. Some weaker answers were too extreme in describing the abandonment of farms and underpopulation, whilst others wrote about impacts on urban areas.

(b) (i) Many candidates identified that the buildings were made of wood and were tightly packed together. All other answers from the mark scheme were seen but were less common. Marks were lost by candidates who gave value judgements and assumptions about the area or focused their answers on what could not be seen in the photograph rather that features that could be observed. For this type of question there is a need for candidates to develop skills to clearly describe what they can see in the photograph.

(ii) Generally, well answered by candidates of all abilities giving a range of problems associated with squatter settlements, which result in high levels of disease being prevalent. It was encouraging to see many candidates developing or linking ideas relating to food and water availability/cleanliness, people living in close proximity, lack of hygiene and inadequate rubbish disposal, rather than listing simple bullet points. Some correctly exemplified their responses by references to specific diseases, such as cholera, malaria and Covid-19. Some weaker candidates wrote about pollution, poor education and poverty without giving sufficient detail on any of these for credit.

(c) This question achieved good differentiation. Most candidates were able to identify a valid urban area, with Mumbai and Dubai being the most common responses. There was a wide range of other acceptable examples used, particularly large urban areas in Africa or Asia. Whilst candidates generally offered a variety of reasons for migration, some only gave limited ideas (e.g. employment) and only the more perceptive were able to give specific details about the urban areas and develop several ideas fully. Some weaker answers focused on migration where the destination was a country rather than a named urban area (e.g. from Mexico to USA), although such answers gained some credit where ideas were relevant.

Question 3

This was much less popular question than **Question 4**, in fact it was the least popular question on the paper.

(a) (i) Whilst there were some accurate definitions the word 'transpiration' did not seem to be familiar to many candidates and few correctly referred to 'water vapour'.

(ii) Only the more perceptive candidates showed the required knowledge and understanding of the concept of interception and were able to explain that it varies from place to place due to different amounts/types of vegetation and from time to time due to seasonal changes in the vegetation characteristics. Many wrongly wrote about changing amounts of rainfall and different climate types.

(iii) Some candidates did identify all three processes correctly, but many showed no knowledge of the terms and guessed wildly or left the spaces blank. Surface runoff/overland flow was the best known of the three processes.

(iv) There were significant numbers of candidates who correctly labelled all four features and most candidates were able to label at least one of a tributary and confluence. Source and watershed

were less well known and there was a significant number who either did not attempt the question or used large letters without arrows so it was not obvious which points exactly they were labelling.

(b) (i) Common correct responses usually gained credit for references to the waterfall and the rivers having rocks in them, however overall the photographs were not well used by candidates, with many either not comparing the two rivers or focusing on the valley and surrounding vegetation rather than the actual rivers as instructed.

(ii) There were a significant number of high scoring answers where candidates showed excellent knowledge of the four erosional processes, naming and accurately describing each one for full marks. In contrast many other candidates wrote in vague and simplistic terms about rivers 'wearing away the valley' or wrote instead about transportation processes.

(c) The question discriminated well. Stronger responses explained the sequence of processes in detail, using appropriate terminology and supported their answers with the use of an informative labelled diagram to show the features. Others were familiar with the features but not so knowledgeable about the formation, other than the fact they resulted from deposition when the river slowed down on reaching a large water body. A common error was to use the term 'tributary' rather than 'distributary'. Some candidates wrote in detail about different types of delta formation but this was not what the question was asking. Significant numbers of candidates omitted the question entirely or wrote about another river feature, such as a meander.

Question 4

This question was chosen by many candidates and was the most popular question on the paper.

(a) (i) Although most candidates identified the boundary as constructive (divergent), a significant number mistakenly wrote that it was destructive. Oceanic was also a common wrong response.

(ii) Many candidates made good use of Fig. 4.1 and gained both marks. Almost all correctly identified the direction of plate movement but there was less success in identifying the convection currents. Some candidates thought 'X' identified subduction and a significant minority chose the correct two labels but reversed them.

(iii) Many candidates identified three different hazards from Fig. 4.1. A minority did not use the diagram as instructed, instead explaining how a volcano could cause death and injury without referring specifically to the hazards labelled on Fig. 4.1.

(iv) This was well answered by many candidates, typically by reference to fertile soils, geothermal power and the benefits derived from tourism and mineral extraction. Marks were lost by a significant minority of candidates who referred in simple terms to tourists visiting or minerals being present without elaborating in terms of how this benefits people living near volcanoes by creating work.

(b) (i) Many candidates successfully used comparative words to describe the different impacts on Kobe and Port-au-Prince and where candidates did not do this, they sometimes gained credit for using the word 'only' in the correct context. Weaker answers did not identify the two cities (referring to LEDC/MEDC instead) or just copied the statistics from Figure 4.2 without any interpretation. Others lost marks by referring to the depth of focus and time of day rather than the impacts.

(ii) The question differentiated well. There were many responses with good explanations of the variations and all mark scheme ideas were seen. Particularly common were references to differences in the depth of focus, the amount of planning to deal with an earthquake and the effectiveness of health care or rescue teams. Weaker answers included unrealistic ideas about warnings and predictions.

(c) This was another question which discriminated well, though a significant number of candidates lost marks by including irrelevant information about the impacts rather than the causes of the earthquake as required. Most did refer to causes but many did so only briefly or in a generic manner rather than specifically to the named example. High quality answers used appropriate terminology in answers referring to processes occurring at the correct plate boundary in the correct sequence – friction, pressure build up and release. Others had some knowledge of plate movement at the boundary but were less convincing when referring to the processes occurring and 'plates

collided' was a typical weak response. The most common named examples were Kobe and Port-au-Prince. Other commonly used examples were Nepal and Christchurch.

Question 5

This question was answered by a significant number of candidates but was less popular than **Question 6**.

(a) (i) Almost all candidates correctly named Chad.

(ii) The majority of candidates understood how the diagram was constructed and scored two marks, though some correctly plotted the points but omitted the linking line, or part of it. It is for tasks such as this that candidates need sharp pencils and rulers. Some candidates found that accuracy was difficult to achieve and the thickness or some lines made it difficult to see the plots.

(iii) Relatively few candidates showed an in-depth knowledge of the HDI and many answers appeared to be based on guesswork or ideas shown in Fig. 5.1. There were frequent incorrect references to literacy or GDP and only the best answers suggested the idea of it being a composite indicator and indicated accurately the factors which were combined i.e. life expectancy, GNI and years of schooling.

(iv) Many candidates found this question challenging and few showed good understanding of why there are inequalities in levels of development within countries. Many tried to compare countries, for which some credit was awarded for generic ideas where appropriate. Others referred to inequalities in opportunities for individuals rather than considering variation in levels of development as required. More perceptive candidates did correctly refer to variation within the country in such things as accessibility, education, employment, food and water supply or contrasted urban and rural areas, especially in terms of investment.

(b) (i) This was generally well answered with most candidates showing at least some understanding of the merits of the scheme. It differentiated well and all mark scheme ideas were seen. Common errors were the obvious overlap or repetition of the same idea in different words. Some candidates did not focus on education for under sixteens and wrote about jobs and taking care of the family.

(ii) This was a good discriminator. Many candidates showed sound understanding of their chosen plan for future development in the country and there was a fairly even balance seen of plans 2, 3 or 4. A small minority chose Plan 1 and repeated their ideas from the previous question which gained no credit. High scoring responses were seen for each plan and many of these candidates developed ideas and/or included ideas resulting from the multiplier effect which would benefit the local people and the country as a whole. Common errors included the use of vague ideas such as 'improve quality of life' and 'more development will occur'. Many references were made to the 'infrastructure', most of which were relevant as they referred to specific aspects of it. Candidates should however note that the word 'infrastructure' alone will not be credited unless there is more precision.

(c) Many candidates named a valid case study, sometimes a small area or a city and sometimes a more extensive area and some choices were local to the candidate (e.g., locations in Zambia and Zimbabwe). The use of examples which are local to the candidate rather than textbook examples can be a good strategy, providing there is sufficient breadth and depth in the study. Many different acceptable examples of economic development were seen, ranging from tourism to mining, the key to success being the ability to develop or link appropriate ideas. The development was often the linking of something basic e.g. 'trees are cleared' or 'deforestation' followed by comments about loss of habitats, extinction or impacts on the food chain. Air pollution and water pollution were also ideas which tended to be well developed or linked with other valid ideas. Less successful responses simply wrote bullet lists of ideas, whilst others focused more on the economic development rather than how it was affecting the natural environment. Others wrote about the impacts on people rather than the natural environment.

Question 6

This question was chosen by many candidates.

(a) (i) Most candidates gave a valid definition though a few gave definitions of commercial farming whilst others just referred to subsistence farming being 'small scale'.

(ii) Many candidates used the key correctly to shade the three areas. Other candidates gained a mark for rice fields but found the vegetable gardens harder to correctly locate. Completion of shading, such as this, needs to be done with care according to that used in the key.

(iii) Most candidates correctly suggested a reason related to the rice fields needing to be on the flood plain or in proximity to the river for access to water. Others also referred to the need for more space for the rice fields or being able to protect the vegetables if they were close to the village. Relatively few recognised that the vegetables would be likely to need more attention than rice so were located near the village and that they would be likely to be harvested more regularly. A common error was to state that vegetables were used more often than rice which is unlikely to be true.

(iv) This discriminated well. Stronger responses dealt with the loss of wood supplies for fuel or building and the loss of food sources provided by the woodland. In contrast weaker responses made vague statements about flooding in the village and wild animals attacking. Some candidates mistakenly wrote about the problems of growing crops in the cleared area rather than the loss of the woodland or wrote about impacts on the natural environment rather than local people.

(b) (i) Many candidates seemed to mistake or mis-read 'well' for 'wall' and so wrote about protection. Weaker responses merely referred to increased water supply without specifying how it would increase the farmers food supply. Candidates generally scored better on fences and grazing goats.

(ii) This question differentiated well. Many candidates described or named a variety of methods, some of which they developed, but some only listed one or two ideas, such as using included manure or fertiliser, pesticides, and machinery. Common errors included vague references to increasing the area under cultivation, using 'better' farmland and growing 'more crops'. Shifting cultivation was also suggested as an unrealistic solution whilst other candidates continued to refer to the ideas previously discussed in **(i)**.

(c) There were some excellent detailed answers which identified different natural factors such as drought, floods, crop disease and pests and explained in detail how they impacted agriculture. Many of these answers focused on well documented examples such as South Sudan, Swaziland, Zimbabwe and other African countries, occasionally with place detail or details of specific pests or diseases. Weaker candidates tended to write in generic terms limiting their answers to one issue, typically a climatic hazard such as drought. Despite the clear reference to natural factors in the question many candidates did not limit their responses to these and included irrelevant details about issues such as war, corruption and other human factors.

GEOGRAPHY

Paper 0460/13
Paper 13

Key messages

In order to perform well on this paper candidates should:

- Carefully follow the examination rubric by answering three questions, one from each section.
- Select their three questions with care. Read them through and study the resource material provided with them before making a choice.
- Attempt all parts of the questions which they select.
- Read the questions with care, taking time to study command words and words which indicate the context of the question. Command words such as 'describe'; 'identify'; 'explain' and 'compare' have specific meanings which candidates need to respond to.
- Take note of the focus in all questions and the context – this could include causes or effects, problems or benefits, people or the natural environment, and local or global.
- Learn the definitions of geographical terms in order to define and accurately use them. When defining terms candidates should not repeat a part of the word being defined as part of their definition but use completely different wording.
- In order to write answers which contain the appropriate detail and number of points the mark allocations and answer spaces provided in the question and answer booklet should be seen as a guide.
- Give detailed answers wherever possible, especially in the final two parts of each question, elaborating on or linking ideas to answer the question set rather than just including general information about the topic.
- Practise using graphs of different types, tables of data, photographs, text/brief articles, diagrams and maps, making use of the information provided with any maps, such as the compass, scale and key. Graph and map completion tasks should be done with care, using a ruler and sharp pencil to produce the required precision,
- If a question asks candidates to use statistics in an answer full marks cannot be obtained without doing so. However, the statistics should be used to justify and support ideas rather than just quoting them in isolation.
- Be able to select an appropriate case study for each topic and include place specific information in answers, avoiding writing a long and irrelevant introduction.
- Be able to explain a process, using labelled diagram(s), geographical terms and correctly sequenced ideas.

General comments

The examination was considered appropriate for the full ability range of candidates and it differentiated well between candidates of all levels. As expected, the strongest responses showed competence across the paper and good answers were seen to all questions set. Most candidates were able to make an attempt at all parts of their chosen questions, others were less convincing, either in terms of correctly interpreting the questions or in producing detailed, accurate answers. As always success on the paper overall depended on producing high quality answers across the paper, but particularly to those questions requiring detailed answers, such as the last two parts of each question. High quality answers in these sections included developed ideas, with place specific information (if appropriate) or well sequenced references to physical processes.

Most but not all candidates followed the rubric by selecting a question from each section as required and lack of time did not appear to be an issue. Occasional rubric errors were still seen, either when candidates selected two questions within one section or when all questions were attempted. The presentation of answers from candidates was usually acceptable. A significant number of candidates made use of one or

more of the continuation pages and most, but not all, carefully indicated which answers were being continued.

Questions 1, 4 and **5** were the most popular questions, with fewer candidates choosing to answer **Questions 2, 3** and **6**.

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

Comments on specific questions

Question 1

This session this question was even more popular than usual with the vast majority of candidates choosing this question.

(a) (i) The vast majority of candidates read the bar graph accurately and gave the correct answer.

(ii) Most candidates placed the countries in the correct rank order.

(iii) This question was generally well answered. Most candidates were able to describe the trends seen for both China and Italy, where marks were lost it was often for inaccurate statistics, often rounding the figures or not using the unit of measurement. Some candidates incorrectly considered each year for each country rather than describing overall trends supported by accurate statistics.

(iv) This question was well answered and differentiated well. Stronger responses considered a range of different factors. Some candidates did not gain credit as they made more general statements such as lack of services. The issue for many migrants is the affordability of services such as healthcare and education, rather than the lack of provision and this needs to be clearly stated by candidates.

(b) (i) Stronger answers referred to the idea that the pattern is clustered or uneven and then gave clear descriptions of parts of continents with negative net migration, such as Northern South America or the Western coast of South America. Weaker responses incorrectly named whole continents or individual countries, rather than describing more clearly and accurately the global pattern seen.

(ii) This question differentiated well and there were some high scoring answers which considered with breadth, and or, depth, the reasons why many areas experience negative net migration. Weaker responses used general statements, such as lack of for example services or housing, which did not gain credit.

(c) This was a relatively straightforward case study and differentiated well. The strongest responses selected appropriate case studies such as Mexico to USA and the Philippines to Singapore and addressed both the problems and benefits of receiving large numbers of migrants. A small number of candidates considered the problems for individuals rather than for a named country and so did not gain credit.

Question 2

Few candidates chose to answer this question.

(a) (i) The majority of candidates correctly identified the type of settlement.

(ii) Few candidates answered this question well and simply described the widely spaced nature of the settlements without developing their answer further than this.

(iii) Candidates needed to state three different reasons why the settlement in the resource is nucleated, however few candidates developed their answer beyond the idea of growth around the road junction. Candidates need to ensure they understand the reasons for the growth of nucleated settlements using map evidence.

(iv) This question differentiated well. Stronger candidates considered the advantages of living in the rural-urban fringe often considering advantages of closeness to the countryside together with

benefits of easy access to the town or city centre. Weaker responses did not appear to understand the term rural-urban fringe.

(b) (i) Most candidates correctly identified one or two differences between the location of the settlements but few considered three clear differences. Candidates also need to ensure that they clearly compare the settlements, rather than considering the settlements individually.

(ii) Many candidates described the location of the settlements and so did not gain credit as the question required them to explain the distribution. For example, many identified that the settlements are along roads or along the 30 m contour line but not explain why they are found there, such as for transport of goods and to avoid flooding.

(c) This question discriminated well. Stronger responses clearly described and explained the service provision in a named settlement, however many candidates simply listed the services found in a settlement and did not explain why they are found there. Candidates need to be able to give reasons for the hierarchy of service provision in an area and include ideas such as sphere of influence, low and high order goods and threshold population.

Question 3

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

(a) (i) Most candidates used the map and key to calculate the correct length of the island.

(ii) Many candidates were able to describe the distribution clearly as being mainly on the east and near the coast. Few described the pattern as clustered. Some candidates used terms such as the edge of the island which did not gain credit.

(iii) Stronger candidates gave a very full description of the conditions required for the formation of coral reefs, often using accurate statistics. However, some candidates wrote too generally about the need for sunlight without stating how this was achieved through shallow water or clear water, or noted the need for warm temperatures but did not state that this was water temperature rather than air temperature.

(b) (i) Whilst some candidates described the different beach material shown in the photograph, few were able to suggest reasons for the variation.

(ii) Many candidates understood the question and described a range of coastal protection methods including groynes, the sea wall, rock armour and beach nourishment. Weaker responses referred to techniques not seen in the photograph such as managed retreat or gabions.

(iii) This was well answered by the majority of candidates and the significance of alternating rock types was well explained in most answers. Weaker responses did not expand upon their references to different rock types or wrongly referred to deposition.

(c) This question differentiated well, with some excellent answers clearly explaining the formation of a sand spit with a relevant diagram and using developed statements explaining, for example, how longshore drift occurs and why the material is deposited at a change in direction of the coastline. However, some candidates did not appear to understand the formation of a sand spit and often diagrams added very little of credit to their explanation

Question 4

This was a popular question and was answered by a larger proportion of candidates than **Question 3**.

(a) (i) Whilst many candidates correctly calculated the temperature range, some candidates instead calculated the average temperature which did not gain credit.

(ii) Whilst some candidates gained both marks here, many candidates did not identify the correct latitude descriptors.

(iii) Many responses showed little understanding of the impact of high pressure on the formation of hot deserts, particularly the idea of the air descending and so warming which causes little condensation.

(iv) This question differentiated well. Whilst many candidates were able to identify that these areas have low atmospheric pressure and so lots of cloud forming, stronger answers developed their answers to consider that the air rises and so cools, and also the influence of high levels of evaporation and transpiration.

(b) (i) Whilst many candidates were able to identify that both areas had increased overall and that there were different trends seen in different time periods, many candidates did not clearly identify and compare the differences in the changes or trends for the two areas, instead giving year by year accounts with statistics for each area separately, which does not show a clear comparison.

(ii) There were some excellent answers which detailed a whole range of different specific uses of the timber and also the land. However weaker answers were less specific and mentioned landuses such as farming, building and mining which were too vague to gain credit here. Candidates need to ensure that they consider a wide range of factors, or develop their answers fully to gain full credit here.

(c) Excellent answers based on detailed examples described local and global impacts and impacts on the environment as well as on people. However some candidates need to develop their ideas and give a range of impacts to fully access the marks here. Weaker responses described in detail why the deforestation had taken place rather than considering the impacts and so did not gain credit.

Question 5

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

(a) (i) The vast majority of candidates correctly named the river gorge using the map.

(ii) Most candidates correctly stated that the tourist resort is found in the north of the island and that it is on the coast. Few candidates used compass directions or distances well to locate the resort in comparison to other features on the map.

(iii) Many candidates correctly identified three different attractions using the map. Weaker responses did not give three different features, for example by naming more than one shopping mall, whilst some listed names of places rather than identifying the distinct tourist attractions.

(iv) This question discriminated well, and good answers focused on four different benefits and so gained full marks here. Some excellent answers considered benefits such as improvements in roads and aspects of infrastructure such as electricity and water supply, developing their ideas a little more than the more usual ideas of the availability of jobs and profits for local businesses. Where candidates simply focused on the variety of jobs available, they did little to develop their answer.

(b) (i) Many candidates made good use of both photographs and identified relevant natural attractions with sufficient detail to clearly describe the natural attractions of the area. Weaker responses described how tourists could use the natural attractions rather than describing what the attraction is, such as sandy beaches and tropical vegetation.

(ii) This question discriminated well. Candidates need to develop a number of ideas to access more marks rather than repeating the same idea. Good answers also needed to consider both local people and the natural environment. Impacts on the natural environment need to be clear, for example how the wildlife is affected, for example loss of habitat, rather than using descriptors such as that wildlife is damaged or destroyed which is not clear enough for credit.

(c) This question discriminated well and there were some excellent responses referring to how tourism is managed for sustainability and/or to reduce environmental impacts. Candidates referred to the creation of national parks, use of guides, how visitor numbers were limited and the development of ecotourism, detailing clear management techniques with many valid local and regional examples giving clear place specific detail. Weaker responses tended not to use case studies and referred

very generally to management techniques such as limiting visitor numbers without explaining how this is achieved.

Question 6

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

(a) (i) Most candidates answered this correctly, although not all candidates were able to give a correct definition.

(ii) Most candidates gained full marks by reading the data carefully.

(iii) This question discriminated well; some candidates demonstrated a clear understanding of the Human Development Index.

(iv) Thailand was most commonly chosen, often with very clear reasons given. Weaker responses tended to not justify their reasons clearly, they need for example to state evidence such as highest literacy or uses most energy per person, rather than simply repeating statistics which were given in the table.

(b) (i) This question discriminated well, most candidates could describe the relationship in words, although relatively few stated that it is a negative correlation, or that it is not a perfect relationship. Many candidates were able to use statistics to illustrate the relationship clearly using two both sets of data, access to clean water and infant mortality.

(ii) A variety of answers was seen with candidates explaining a range of reasons why clean water is vital for people and economies. Weaker responses tended to restrict their answers to a limited number of reasons which meant they did not gain access to the full range of marks

(c) This was a relatively straightforward case study and differentiated well. The strongest responses selected appropriate case studies such as Singapore and detailed a range of approaches to water management. Most answers could identify ways to store or access water, but fewer were able to explain how the water was made fit for consumption, such as filtering or chlorination, or how it reached the population.

GEOGRAPHY

Paper 0460/21
Paper 21

Key messages

- Candidates should make sure that they understand clearly the meanings of the command words, such as describe, suggest, compare and explain and what responses these require.
- When measuring distances on survey map extracts (**as in Question 1(d)(i)**), candidates are recommended to use the method described on page 21 of the syllabus and avoid calculations completely.
- Mapwork skills relating to scale, direction, grid references and cross sections, as described on pages 20, 21 and 22 of the syllabus, are an area for improvement.
- Candidates should learn the key geographical vocabulary thoroughly, particularly those terms listed in the syllabus.
- Knowledge of soil erosion (syllabus ***section 3.7***) was relatively weak and this is possible area for improvement.

General comments

A full range of responses to the questions were seen ranged from very good to poor across the whole paper. There were fewer very good scripts which scored 45 marks and over than was seen in previous sessions. .

Question 1

(a) Almost all candidates scored high marks in this section. When several different symbols were shown on the same line in the map key, some lost marks through copying the whole line. In parts **(i)**, **(ii)**, **(iii)** and **(v)** most candidates scored all the marks. However, in **part (iv) t**he correct answer, *railway station*, was stated by some candidates but others incorrectly stated *railway with station and tunnel*.

(b) A few candidates gained 5 or 6 marks in this section but 3 or 4 marks were scored by most. There was no consistent pattern to the incorrect answers.

(c) Many candidates found this section difficult and cross-sections are an area for improvement for many candidates. Few candidates correctly identified the road at **X** and a great variety of incorrect answers was suggested. Rather more candidates correctly identified the river **Y** as the *V.ne dei Sieli*.

There was a weak response to placing a labelled arrow on the cross section with many candidates not attempting it and only a small minority of candidates gained this mark.

(d) The quality of answers in this section was relatively weak with few candidates gaining more than 1 or 2 marks. There were many more correct answers in **(iv)** than in the other three parts. For the distance measurement those answers between 7700 and 8100 m gaining credit. Those candidates who did not use the scale line and did mathematical calculations to obtain their answer frequently failed to give the correct answer. For the compass direction the required response was *east* and this was only given by a small number of candidates. Very few candidates gained a mark for the bearing. Answers between 91° and 94° gained credit but the wide range of incorrect answers given suggested that only a few candidates exhibited an understanding of how to measure bearings. Candidates had a generally good understanding of 6 figure grid references.

(e) Two geographical terms were required to be identified in this section. Many candidates incorrectly quoted place names, or features taken from the map, or gave no response. About half of the

candidates correctly identified the settlement pattern as *dispersed* but hardly any identified the stream pattern as *dendritic*. (Settlement and drainage patterns are referred to on page 21 of the syllabus).

Question 2

(a) In **part (i)** the majority of candidates scored both marks in this part of the question, usually for identifying that both main roads and the railway pass through Spalding. In **part (ii)** most candidates scored at least one mark but candidates did not always pay attention to the command word *compare*. In this case a comparison between the road links of second and third order settlements was required.

(b) Many candidates correctly drew a possible sphere of influence of Long Sutton; at least two nearby smaller settlements needed to be included in order to gain credit. Credit was not given when Holbeach or Sutton Bridge were included. A surprisingly high number of candidates did not attempt this question even though the instruction in the question was in bold.

(c) Only a very few candidates made suggestions that could be credited, and these usually related to possible differences in relief. Most candidates referred back to the distribution of roads which did not gain further credit.

(d) In **part (i)** almost all candidates plotted the figure 11 correctly on Fig. 2.2. The few errors made were where candidates had miscounted the number of third order settlements. In **part (ii**) most candidates were aware of the negative relationship shown in Fig. 2.2 and gained the mark.

Question 3

(a) Most candidates ticked the correct box to identify the type of plate margin as *destructive/convergent*.

(b) There were a great many different responses in this section, with candidates scoring the full range of marks. Most frequently, candidates identified that Bio-Bio was on the plate boundary and that plates are converging at this point. Some also made good attempts to explain the subduction of the Nazca plate with some of the more able noting that this plate was a denser, oceanic plate. There were also those who included reference to friction between the plates, compression and the release of energy leading to the earthquake.

(c) There was evidence of wide knowledge on this topic and many different ideas scored marks. These ranged from the use of monitoring systems, evacuation procedures and earthquake drills to many ways of designing buildings to be earthquake proof. The best answers were very specific and concisely written.

Question 4

(a) There were some good responses in this section and many features of the vegetation, such as *short trees and bushes*, *small leaves*, *sparse distribution* and presence *in lines*, gained credit. Some of the strongest answers were, once again, very concise. Weaker responses included irrelevant material about hills, desert landscape, weather, nature of the buildings. These did not gain credit, nor did those who gave details of the vegetation which could not be seen in the photographs, such as the underground root systems and the ability of the plants to store water.

(b) Many candidates found this question difficult and did not address the issue of how the waste heap was a threat to the natural vegetation. Stronger answers gave direct responses which mentioned the loss of vegetation and animal habitats, that the heap might contain toxic waste which could affect rivers and groundwater, and that it caused visual pollution.

Question 5

(a) Most candidates gave the correct answer, *75 million tonnes*, by referring to Fig. 5.1.

(b) Almost all candidates were correct in choosing *mostly in the centre* for the location of states suffering from soil erosion. In **part (ii)** very few candidates correctly identified that the states with

soil erosion by wind were further west (or that those with soil erosion by water were further east). Many repeated their answer for **part (i)**.

(c) There were good answers for **part (i)**, with many noting the link between higher rainfall and greater soil erosion by water. In **part (ii)** understanding of the processes of soil erosion was very limited and only a very few candidates scored marks in this section; many reworded their answer for **part (i)** but gave no explanation as required by the question.

(d) Few candidates gave answers that gained credit in this section and knowledge of the subject was poor. Where marks were scored, this was usually for mention of afforestation or irrigation. Many ideas could have gained credit including terracing, contour ploughing and crop rotation. Many candidates offered irrelevant answers relating to flood control.

Question 6

(a) There were some good responses, with candidates most commonly stating that the industrial regions were coastal and around cites. Many appreciated the need to look at the general pattern in this question and those who listed the industrial regions or rewrote the key from Fig. 6.1 did not gain credit.

(b) The majority of candidates scored the mark here for circling *secondary*. The full range of incorrect responses was given by those who did not score.

(c) Candidates who linked their explanation to the locations described in **part (a)**, making reference to the resources provided, scored well in this section. Most often, they stated that the industrial regions tend to be coastal for imports and exports, although few mentioned the savings on land transport costs or break of bulk. Candidates often noted the locations around cities, but few explained that the cities provided labour and markets for products.

GEOGRAPHY

Paper 0460/22
Paper 22

Key messages

- When measuring distances on survey map extracts (**as in Question 1(d)(i)**), candidates are recommended to use the method described on page 21 of the syllabus and avoid calculations completely.
- The formation of a coastal spit was poorly understood in **Question 3(b)**. Syllabus ***sections 2.1, 2.2*** and ***2.3*** each list a series of landforms. Candidates should be able to describe these landforms and to explain their formation.
- When answering photograph questions (in this paper particularly **Questions 3(b)** and **3(c)**) candidates should focus on what can be seen in the photograph rather than speculation.
- Candidates should know the meanings of terms listed in the syllabus.

General comments

Candidates performed well in most parts of the mapwork question although slightly less well in the distance measurement and compass direction parts of the question. There were aspects of all questions which candidates found difficult but **Question 4** was the main area of difficulty for a large number of candidates.

Question 1

(a) Candidates were able to gain good credit on this section, showing good skills of finding features on the map and identifying them using the key. The river at **A** was the *Licodia*, the height above sea level of the spot height at **B** was *317 m*, **C** was a *church*, **D** was a *cemetery* and **E** was a *national main road.*

(b) Most candidates were able to identify the area of dense settlement (**Q**) and the area with land over 900 m (**Q**). A large number identified area with a railway (**P**) but fewer identified the areas of dispersed settlement (**P** and **Q**).

(c) Some candidates found the questions relating to the cross section (Fig. 1.3) difficult, although full marks were frequently scored. The feature at **X** was a *river* (or the Fiume Simeto), **Y** was a *national main road*. Candidates were generally able to label the position of the settlement at Biancavilla correctly and almost all did so using an arrow pointing to the correct position on the line of section. Some candidates omitted this part of the question.

(d) Although there were many correct answers, some candidates found the distance measurement difficult. This was particularly so where candidates attempted unnecessary calculations. Examiners accepted answers within the range of *7500 to 7850 metres*. Candidates generally gave the correct compass bearing (*south east*) but found it more difficult to give the corresponding bearing of approximately *139°*. The grid reference (*822674*) was mostly correct.

(e) There were many very good answers with candidates often referring to the *flow to the south*, *meandering*, *tributaries*, *variable width* and *islands*. Occasionally candidates spoiled the point by incorrectly described the tributaries as leaving the river. Less frequently candidates noted the *gentle gradient* of the river.

Question 2

(a) Most candidates correctly gave the number of females aged 25 – 29 as 4 per cent.

(b) The predicted changes in the world population could be described by referring to Figs. 2.1 and 2.2 and many candidates noted correctly that the percentage of people aged *0 – 49 would decrease* and the percentage *aged 50 and over would increase*. Some candidates misinterpreted the question and answered by describing differences between age groups using only Fig. 2.1.

(c) When giving differences between the population structure of the Central African Republic and the world, those candidates who picked out the differences in age groups (*Central African Republic had more young, fewer middle aged and fewer old*) scored well. Those candidates who simply described the shape of the diagram without interpretation, e.g. thinner at the top, scored less well. Other candidates strayed away from population structure and made deductions about life expectancy, birth rate and death rate which did not gain credit. Many candidates correctly suggested that a problem created by this structure was the large dependent population, or more specific problems of this high dependency such as pressure on the education system.

(d) There was a mixed response to this part of the question. Many candidates noted *the faster predicted growth rate in the Central African Republic* and some even gave the correct growth rates of Central African Republic 72 per cent and world 23 per cent. Others failed to note that the question referred to the rates of growth and simply noted that the world's population would increase by a greater number than that of the Central African Republic.

Question 3

(a) Most candidates correctly identified the three urban land use zones as Fig. 3.1 industrial, Fig. 3.2 residential and Fig. 3.3 CBD.

(b) When describing the land use in Fig. 3.2, those candidates who concentrated on what could be seen in the photograph scored well. Three marks were easily scored by noting points such as the *grid pattern streets*, *single storey houses*, *trees*, *swimming pools*, *gardens* or *yards* and *wide* or *straight roads*. Other candidates speculated on the possible use of the buildings in the background and did not gain credit for this.

(c) In suggesting a reason for the growth of the settlement in Fig. 3.3 credit was given to those who argued for a commercial (CBD) function and those who argued for it being a port. Candidates did not always follow the instruction to 'Support your answer with evidence from the photograph'. Evidence for the port (or trading) function included the harbour, ships in dock and sheltered bay. Some of these were also evidence for the commercial function, along with the high-rise buildings.

Question 4

(a) Most candidates failed to identify all four landforms shown in Figs. 4.1 and 4.2. **W** was a lagoon or lake, **X** was a spit, **Y** was a bay and **Z** was river.

(b) ***Section 2.3*** of the syllabus states that candidate should be able to 'Describe and explain the formation of .....spits'. The majority of candidates were unable to do this. Many felt that this was due to the action of the wind or rivers or coastal erosion. Stronger answers described the formation by a sequence of events such as *onshore winds, swash at an angle to the coast, backwash at right angles to the coast, longshore drift moving material along the beach and deposition at a bend in coast*.

Question 5

(a) Most candidates knew the meaning of the term HEP (syllabus ***section 3.5***) but fewer knew the meaning of the term drainage basin (syllabus ***section 2.2***).

(b) Many candidates used Table 5.1 to explain that the Blue Nile had a better water supply than the other two rivers because it had a *larger discharge* and it *did not dry up*. Fewer realised that the large variation in flow would require a dam to collect water from the wet season in June to September.

(c) Sudan and Egypt were the countries most worried about the building of the dam because they were downstream of it and potentially their water supplies for irrigation and HEP could be affected. Many candidates failed to deduce from Fig. 5.1 that the Nile was flowing from south to north and Egypt and Sudan were downstream of the dam, so their answers were confused.

Question 6

(a) The majority of candidates correctly identified a *bar graph* as the type most suitable to show the information in Table 6.1.

(b) This was generally well answered with candidates noting that most of the countries were in the northern hemisphere and Europe but there were two countries relatively close: South Africa and Reunion.

(c) When using Fig. 6.2 to suggest why tourists visit Mauritius all year, many candidates noted the hot temperatures all year. Candidates who gave a list of figures, or who described the temperatures as cool, did not gain credit. The evidence from Figs. 6.1 and 6.2 which suggested why Mauritius was a popular tourist destination from the listed countries included Mauritius being *hot or hotter* than the other listed countries, the climate would allow *winter tourism for northern hemisphere countries, the nearness to South Africa and Reunion* to would reduce travel costs*,* the coastal location would allow *beach tourism and* Mauritius would be particularly attractive to *people from landlocked countries* like Switzerland. Candidates scored all these points, although full credit was rare.

GEOGRAPHY

Paper 0460/23
Paper 23

Key messages

- Some candidates found the question on the formation of a meander (**Question 3(c))** relatively difficult. Syllabus ***sections 2.1, 2.2*** and ***2.3*** each list a series of landforms. Candidates should be able to describe these landforms and to explain their formation.
- Candidates sometimes failed to understand the command words in the questions. In **Question 3(c)** and **Question 6(b)** they sometimes failed to see the difference between *describe* and *explain*.
- When marking features on a cross section as in **Questions 1(c)(i)** and **(ii)**, candidates should measure on the map and cross section rather than trying to judge by eye.

General comments

This paper was comparable with previous sessions, with all questions of a similar difficulty level except for **Question 3**, which some candidates found a little harder. Some candidates omitted **Question 1(c)(ii)**, **Question 1(c)(iii)**, **Question 3(b)** or **Question 3(c)**.

Question 1

(a) The map of Taormina included several features that would not have been familiar from past maps and candidates did very well in applying their skills to the unfamiliar landscape. **A** was a *motorway* but did not include a tunnel as indicated by some candidates. **B** was a *railway*, again not including a tunnel. Almost all candidates correctly identified **C** as a *funicular*, **D** as *lava flows* and the name of river **E** as *Venera*.

(b) For a tourist activity within 2 km of Taormina, many candidates correctly opted for *diving*, having spotted the two dive sites nearby on the coast. Other correct answers included *climbing*, *hang-gliding*, *paragliding*, *mountain biking* and the *nature reserve*. Those who failed to score the mark may have selected a tourist activity from the key without checking that it was located in the area stated in the question.

(c) For feature **X** either *railway* or *other road* were accepted. Most candidates selected railway. Those who wrote out the entire line of the key could not be given credit. Some candidates selected *national main road* which was nearly a centimetre out of position. When labelling the position of Gaggi, the settlement was located between 25 mm and 35 mm from the left-hand axis, but some candidates had their arrow at less than 25 mm. They may have been looking at the location of the settlement label on the map rather than the settlement itself. When completing the cross section in **part (iii)**, candidates needed to show the land rising towards the east. A number of candidates simply followed the trend downwards.

(d) The distance along the coastline, from Capo Taormina to the south edge of the map, was 8500 metres. Candidates found this to be quite difficult and some appeared to have given the shorter, straight line distance. The compass bearing from the Capo to the southern edge of the map was 221°. There were more correct answers for this than for **part (i)** but some candidates measured to the Capo rather than from it.

(e) Fig. 1.3 highlighted two areas of the map, **P** and **Q**. Candidates had to complete the table to compare the two areas. Flat land was found in **P** only, while land over 500 m was found in **Q** only. Both areas contained a national main road, while neither had a plateau or a mountain bike route. Candidates usually scored at least 2 marks (often the first 2) and many scored 4 or 5.

(f) Most candidates interpreted the question correctly, typically scoring between 2 and 4 marks. Descriptions of the relief given credit included: the *narrow*, *V-shaped valleys* with *steep slopes*, the *high* or *mountainous* land, *ridges* or *spurs*, the *highest point of 886 m* and *higher land in the north west.* A few candidates gave features unrelated to relief.

Question 2

(a) Most candidates realised that a growth rate of less than 0 (zero) would give a *declining population*, as the total population decreased in size. A few responses included an attempt to interpret possible consequences of declining population and suggested the countries would be under populated. When describing the distribution of the countries with growth rates of less than zero, most candidates scored at least one mark for mentioning point such as in *Asia* (or Russia), *Eastern Europe* or the *north east*.

(b) When describing the population growth rates in Africa most candidates scored at least 1 mark and the majority followed the instruction to not use figures in their answer. Density was *highest in the centre*, *near the equator* or *within the tropics*, and *lowest in the north and the south of Africa*. Some candidates noticed that the values were *slightly lower at the equator itself* compared to the areas either side.

(c) When calculating the birth rate of Angola many gave the correct answer of 44 per thousand (35 + 9) but others gave the incorrect answer of 26 per thousand (35 – 9). For the growth rate of Bolivia, many gave the correct answer of 22 – 6 – 1 equalling 15 per thousand. Common errors included adding the migration, giving 17 or omitting it altogether resulting in 16.

Question 3

(a) Many candidates found this quite difficult. Fig. 3.1 showed lots of *rocks* in a relatively small river, where these would only be moved by *traction*. The water in Fig. 3.2 was coloured brown due to the huge sediment load of *mud, silt, clay* or *soil* being carried along in *suspension*. A few responses showed knowledge of the transport processes, but others wrote erosion processes or deposition. Some suggested solution, which of course could not be seen on the photographs.

(b) In Fig. 3.2 the river was in its *middle course* or *lower course*. Some candidates gave features that would be found in that part of the river which was not given credit.

(c) This also proved to be a difficult question for many candidates. Responses tended to focus on initial changes that might take the river away from a straight path and did not always continue into the description of meander development. They needed to write about the *faster flow on the outside of the bend, leading to erosion*, with *slower flow on the inner bend encouraging deposition*. Many were not clear about which side of the river their comments referred to, but the best answers included clear explanations and mentioned *helicoidal flow*.

Question 4

(a) Fig. 4.2 was a map showing depths of ash from the eruption of Tambora in 1815. Most candidates realised that on the island of Bali, the ash was between *20 cm and 25 cm* deep. The most common error was *150 cm*, which some candidates had taken from Fig. 4.1, ignoring the information on the Fig. 4.2. The pattern of ashfall indicated a wind direction of *south east* but the majority of candidates answered *north west*. They may have interpreted the map correctly but had forgotten that winds are named by the direction from which they blow. Most candidates noted that the ash clouds resulted in lower temperatures in Europe and North America due to blocking the passage of sunlight to the surface.

(b) For the distribution of pyroclastic flows on Fig. 4.3, many candidates gained credit by noting points such that the flows were *away from the crater*, *on the lower slopes* of the volcano, *near the sea*, *following the valleys*, *along the rivers*, and *more extensive in the south*. Those that gained only one mark often wrote extensively about distribution in relation to compass directions but did not give any other information.

(c) Many candidates gained full credit by mentioning points such as the *conical shape*, the *steep* sides, the *crater*, the *layers of ash and lava* and the *secondary vents*. Others mentioned the *concave* slope and *andesitic* lava. Some ignored the instruction to not write about the eruptions.

Question 5

(a) Figs. 5.1 and 5.2 were photographs of agricultural systems and candidates were asked to describe them by completion of a table. Most candidates gained at least 2 of the marks but there was no pattern to the incorrect answers. Fig. 5.1 showed subsistence arable, while Fig. 5.2 showed commercial arable. Hence both photographs showed arable and neither showed pastoral.

(b) When giving evidence that Fig. 5.1 showed an intensive agricultural system, candidates often gained credit for points such as the *small area*, the relatively *large amount of labour* and the fact that the labour was *working by hand*, without the use of machinery. Many described what they could see in the photograph but did not necessarily apply it to answering the question.

(c) In Fig. 5.2 the physical inputs that were visible were *relief* or *land*, *soil* and *sunlight* or *climate*. The human input visible was the *machinery* or *tractors*. Candidates usually identified the human input, less often the physical input. Some candidates named processes.

Question 6

(a) Fig. 6.1 showed a map of an industrial area, along with a list of industries located there. Candidates were asked to identify appropriate examples which the majority succeeded in doing. For secondary industry they could select from *flour milling*, *cosmetics*, *breakfast cereals*, *food* and *beverages* or *chemicals*. For tertiary or quaternary industry, the options included *theatre*, *museum*, *TV and broadcasting*, *university*, *communications technology*, *professional sport* and *transport*, (relating to the road, rail and air links shown, such as the airport).

(b) Candidates were given additional information and were asked to explain the advantages of the area for industrial development. There were many excellent answers. However, some candidates failed to focus on the command word *explain*. It was not enough to list features shown in Figs. 6.1 and 6.2 without explaining how each was an advantage for industrial development. For example: transport links needed to be linked to supply of raw materials, distribution of products or, in the case of rail or motorway, the transport of customers or commuters. Similarly, the large population in the area needed to be linked to labour or market. Some answers focused on advantages for the area or for its population such as *development provides lots of jobs for the large population*.

GEOGRAPHY

Paper 0460/03
Coursework

Key messages

This report refers to the performance of centres in the November 2020 examination, however, the comments made here are equally applicable for centres that make their entries for the first time in June 2021.

The number of centres for the coursework option showed a very small decrease compared with November 2019. The number of individual candidates' entries did show a larger decrease although this was due to the withdrawal of a large centre due to the COVD-19 pandemic. There were some centres who opted for the 0976 03 option rather than 0460 03. For this session there was a bigger proportion of entries from the Northern Hemisphere which was largely due to an increase in the number of Italian centres. Human Geography topics overwhelmingly dominated over Physical Geography ones but candidates achieved equally well on each.

For most established centres, the quality of the coursework submissions continues to improve. However, for some new centres we would ask that the relevant coursework guidance be read and/or the staff involved had not received training on how to run and/or mark the coursework option. If you have not already done so, then you should submit an outline proposal for approval by Cambridge. This describes the nature of the coursework that you are planning for your candidates to undertake and should be based on the route to geographical enquiry. Besides the *Moderator's Comments on school-Based Assessment of Coursework* report on the submitted coursework, it is the main opportunity for Cambridge to offer advice based on good practice as well as comment on proposals which may hinder a candidate. This particularly applies to the nature and amount of data collected. It is important that enough primary data is collected to allow candidates to exhibit a depth of understanding in their analysis. 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. Please note that the Outline Proposal service will be phased out by Cambridge after November 2021, so this will be the last opportunity to get your plans vetted. The latter is to be replaced by more in-depth information on the Cambridge International website.

There is training available online for teachers who are new to the coursework option. There is also the Coursework Handbook available from Cambridge International which includes examples of coursework which are annotated to show how they should be marked. Training courses at present have unfortunately been extremely curtailed, owing to the COVID-19 Pandemic.

Given the ongoing situation with COVID19 we do recognise that it might be difficult to collect primary data at present. With this in mind, if you are unable to undertake your planned fieldwork visit, Cambridge would be happy for the data collected in past years to be treated as primary data. Candidates can write up the data collection section as if they had conducted the fieldwork themselves. This may of course, not be appropriate for all centres, especially those doing the coursework option for the first time. If the fieldwork does takes place as planned, then in this instance, there is the opportunity to compare the data collected with that collected previously, and to recommend improvements.

Please note, that it is expected that data is collected in groups. This is then collated by a teacher and redistributed to the candidates for them to work on their individual hypotheses. For safety reasons Cambridge does not recommend that candidates collect data on their own, indeed, any proposals detailing candidates undertaking separate topics which require their own discrete data to be collected individually, will not be approved. Should a candidate need to add extra data for their own study to that that which has already been collected as a group, it is expected that they are accompanied by an adult, especially when administering questionnaires or collecting data on a river or along a beach.

It must be pointed out that for most centres the moderation process runs smoothly. It is inevitable that this report focuses on aspects of the moderation which were not done so well or where candidates could improve

their coursework to access the higher grades.

General comments

It was reported that in general the studies were well balanced with candidates demonstrating a familiarity with the Route to Geographical Enquiry. On occasions the introduction and methodology were too long and the analysis and conclusion, too short. However, it is quality not quantity that should be emphasised.

It is important that the collection of a large amount of primary numerical data or data which can be quantified, for example from questionnaires, takes place. Where candidates collaborated in one overall primary data collection exercise, these tended to be well organised and resulted in a large amount of data. This was collated by a member of staff and subsequently redistributed in order that each candidate could work on his/her own individual hypotheses. However, where candidates collected their own data in small groups this did not tend to work so well. Those candidates who based their studies solely on secondary information from the internet, only made a cursory attempt to follow the Route to Geographical Enquiry, and thus restricted the marks they could score.

All studies should be clearly individual even though data collection is a collaborative exercise. Such individuality is key to reaching the highest marks and can be achieved by each candidate testing at least one hypothesis which is peculiar to them alone. This is besides one or two which are undertaken by the whole group. It is therefore important that a group of candidates undertake a range of different hypotheses on any one topic. There are some centres in which all candidates do the same hypotheses, state the same facts in their introduction, and submit the same computer-generated graphs. In some of these cases very little individuality was demonstrated.

Most studies were well focused and kept to the word limit. The better studies were those that were more concise. There were only a few that were overlength; these tended to be a little verbose and/or lost sight of the original aims of their investigation. Getting candidates to declare a word limit usually gets them to concentrate on the issue.

By and large candidates were able to demonstrate sound background knowledge regarding their chosen topic. However, where geographical theory was described it was often not applied with any degree of detail in the Analysis and Conclusion sections of their study.

The strongest area for some candidates was the *Organisation and Presentation*, where many not only effectively employed a range of different methods but showed some complexity in their graphs which gained access to the higher marks for the criteria. However, some scanned graphs and maps were not always legible. The data collection exercise was also well described by most candidates who thus scored highly for the *Observation and Collection of data* criteria. The *Analysis* continues to be the weakest section, and although description of the data was often thorough it lacked explanation, or the explanation was rather speculative. The *Conclusion* often lacked reference to key data, which prevented access to the highest marks, although the *Evaluation* was in comparison, stronger and revealed that many candidates had a good appreciation of some of the drawbacks of their data collection strategies.

Most centres applied *the Generic mark scheme for Coursework assessment* accurately and consistently and thus Moderators tended to agree with the order of candidates. For those centres whose marks had to be adjusted, there again seemed to be a pattern of negative adjustments above 47 marks and positive ones for those below 35. This particularly applied to the *Analysis*. In general, *Knowledge and Understanding,* and the C*onclusion* tended to be adjusted negatively, while *Organisation and Presentation* was adjusted positively. Those very few centres which had a large adjustment applied, were generally relatively new to the moderation process; the reasons would be detailed in their coursework report.

Comments on specific assessment criteria

Since each centre will receive a coursework report entitled *Moderator's Comments on school-Based Assessment of Coursework*which will refer to both particular strengths, and weaknesses, it is points that are common to several centres which are reported below and are based on each of the assessment criteria in turn.

The criteria of *Knowledge with Understanding* continue to be assessed a little too highly. Markers are reminded that whilst the bulk of knowledge tends to be found in the introduction, it should, along with a

candidate's level of understanding, be considered over the study as a whole. In particular, the application of relevant theories may be judged in the analysis, when explanation for the patterns that have been identified are sought. Relevant comments made by the marker on the script, for example when a theory has been appropriately applied or indeed a well-reasoned account of why it has been dismissed, are very useful in the moderation process.

Whilst almost all candidates clearly stated the aim of their study there was a strong contrast between established centres and those which were new to the coursework option. In the former case, the studies tended to be focused around two or three hypotheses which were well justified. This justification often consisted of the expected outcomes for each hypothesis, usually based on theory with appropriate use of geographical terminology. Background information regarding the study area was kept to a minimum with historical detail only being included where comparison with the past was integral to the study. Theory was well linked to either the aims of the study or to each individual hypothesis. A good example was the reference to the expected push and pull factors as reasons for migration to a particular region or country.

For some studies the introduction possessed just a list of hypotheses with little or no comment as to why they were being tested or any notion of a predicted outcome. For some new centres the hypotheses were often absent and thus the studies turned out to be far too general and less focused on specific aspects of the topic which were to be tested. Geographical theory, where it was included, was often poorly related to the aims of the study and referred to only in the introduction. One common example were the urban models of Burgess and Hoyt. These were often scanned in from internet sources or textbooks but with scant or no utilization by the candidate to explain why they had been included.

There is still a tendency for some centres to encourage their candidates to include a glossary of geographical terms. These are not only relatively superfluous, but a waste of wordage which could be used to good effect elsewhere, such as in the analysis. Furthermore, when copied from textbooks, they tend to demonstrate little regarding the candidates' level of understanding.

Most candidates have been made aware of the need to include a map of the study area to locate the places where data was collected, whilst many also showed its location within a region or country. However, it is important that these maps, whatever the source, have a scale and orientation. Where these maps are scanned into a space on a particular page, it is important that the detail on the map is still legible. In addition, it is expected that these maps are utilized by the candidate, for example using annotations to indicate the relevance of various locations to the study. A few candidates still include three or four maps at different scales to show the study area at a world, continental, regional scale etc. This is not necessary and generally adds little to the quality of the study.

As in the past November sessions, the criteria *Observation and Collection of Data* was by and large, accurately assessed by the markers and very few adjustments had to be made. The only exception were a few centres who were new to the coursework module and set a topic/topics in an essay format that entailed collecting and synthesising information culled from the internet or textbooks. Since this is entirely secondary data, then no mark could be awarded for the collection of primary data. It must be noted that there is a place for numerical secondary data, but usually for comparison with the primary data collected, in studies which are looking at trends with a time element.

The Moderators noted that the COVID-19 Pandemic seemed to cause relatively little disruption to data collection routines for many centres. Others introduced novel ways to sidestep going out into urban areas, for instance, the use of online questionnaires which were collated in the same way as if they had been collected in the field. Online interviews were also held by some candidates.

When working in groups the fieldwork collection strategies were carried out in an organised way with each candidate playing their part in order to establish a pool of data from which individuals could draw from in order to confirm or reject their hypotheses. Environmental quality surveys, questionnaires, pedestrian and traffic counts for instance, allowed for appropriate presentation methods and analysis to follow. However, it should be noted that those centres who allocated more than half a day to data collection achieved much better results than those who attempted to collect data over a one- or two-hour time slot.

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

The need for at least 50 questionnaires collected by a class of candidates as a whole in order to yield enough data for detailed analysis is generally well understood. However, there are still a minority of candidates albeit in small groups, that make only a token gesture to undertake data collection by questionnaires. Some for instance, just restricted their questionnaires to family members which rather limited any attempt at analysis. The main weakness of the write up of data collection using questionnaires, was the lack of detail of the sampling strategies. Where such a description existed the justification of the method was often missing. This also applied to why each of the sites used for data collection was chosen.

The most successful studies included tables of the data collected. This is vital evidence to show the origin of data used in the production of graphs and are helpful for candidates to pick out trends or highlight anomalies in their analysis. Such tables were then integrated with the data presentation and analysis sections, thus facilitating easy reference as each graph can then be analysed in turn. Such data tables also indicate that the candidate has taken part in the data collection exercise. Further evidence could be a series of photographs annotated to show candidates undertaking the various stages of their data collection.

The criteria *Organisation and Presentation* exhibits the most variation in marks given by centres compared with the moderated assessment. Some studies which scored higher marks were overmarked due to the lack of complex methods of data presentation and/or the absence of location maps which had not been utilized by the candidate or did not possess both scale and orientation. Meanwhile, some lower scoring studies which used at least three different simple techniques or included one complex technique tended to be underscored.

These techniques must be effective in portraying the data and this session, there were examples of line graphs used for discrete data rather than continuous data which meant they were inappropriate. It should also be noted that different sorts of bar graphs only count as one technique. Furthermore, the same data presented in a number of different ways is likely only to count once,

For many candidates the presentation of their data was the strongest aspect of their studies. Many demonstrated a range of techniques effectively, although there is still a tendency to rely on simple bar graphs and pie charts, especially amongst the lower scoring studies. However, there were some complex techniques employed accurately and these included compound bar graphs, radar graphs, flow line maps and kite diagrams. It was felt that some candidates missed the opportunity to locate graphs, such as bars or proportional circles on an outline map of the study area. Well drawn and annotated field sketches were seldom seen as were statistical techniques such as Spearman's Rank Correlation which had all the workings shown. Both the latter would be regarded as complex techniques of data presentation.

There seemed to be a plethora of incomplete bar and line graphs, which having been drawn accurately, lacked axis labelling, particularly on the Y axis. On occasions titles were also missing. Since the majority of graphs are produced by using computer programmes, it is wise that having inputted the data, candidates inspect the results carefully and make any necessary amendments.

Most centres encourage their candidates to take photographs during their fieldwork. These should be taken individually rather than the same photographs appearing in almost every study from a particular centre. This is a clear opportunity for a candidate to make his/her study more individual. Furthermore, the use made of photographs varies widely. The best examples are those which comply with a clear message, 'integrate, entitle and annotate'. Those which are lumped together in an appendix serve no useful purpose.

The 'Organisation' usually presented no problem with almost all candidates following the route to geographical enquiry and thus, providing a well-defined structure to their studies. The only exceptions were those from centres which did not undertake primary data collection. This structure often, but not always, included an index of contents and page numbering. Many took great care to reference their secondary sources with an extensive bibliography. Unfortunately, others provided no references at all, despite using theory in the form of diagrams which had clearly come from a textbook or the internet. Only a few candidates now lump all their graphs and photographs together rather than integrate them with their text. However, some candidates included graphs in an appendix for example from a questionnaire, which were not relevant to the hypotheses being tested. These could not be given credit.

The Analysis remains the weakest criteria for many candidates. It was in most cases, accurately marked by established centres for a major part of the mark range. However, there was some disparity with the Moderator's assessment at the top end of Level 3 where it was felt that there was not sufficient reference to key data and a reliance on description rather than reasoned explanation. Conversely, at the lower end of the mark distribution, some candidates were under marked as graphs were described with reference to the data and thus were worth more than the low Level 1 mark that was given by the marker.

A limited number of candidates did give a thorough description of the patterns revealed by their graphs using key data and then went on to give valid reasons to show whether or not these fitted their hypotheses. However, more often, a comment such as 'This shows the pattern fits Hoyt's Model' was rarely followed with a depth of discussion to show how and why. Candidates are becoming adept at accurately identifying anomalies, although they could be highlighted by annotations on the actual graphs. However, explanation for their presence is often speculative with phrases like 'The reason could be …..' being too common. Furthermore, there were some analyses which were severely limited by a lack of data. Traffic or pedestrian counts for instance, could have been taken at more times during a day or on different days of the week, allowing for averages to be calculated. Similarly, where only a few questionnaires were carried out, the results tended to be very limited, giving rise to little depth in discussion.

For those very few centres whose candidates collected very little primary data or relied totally on synthesis of existing information form the internet, this made an analysis almost impossible, even though it may have been stated as a sub-heading.

Conclusions were very variable in quality with the *Conclusion and Evaluation* criterion tending to be overmarked by some centres. Nearly all candidates referred to their hypotheses and stated whether they were confirmed or rejected. However, only a few went on to give clear reasons with comparison to the theory stated in their introduction backed up by key data as evidence and were thus worthy of the higher Level 3 marks. In general, conclusions were too short or tended to just repeat statements from the analysis. The lack of reference to theory and key data was widely reported by the Moderators. The latter is usually, but not entirely numerical in nature, and can be stated characteristics shown on graphs, maps or tables. These must however, be clearly referenced for example, 'On Fig. 3 it shows that….'. Those centres whose candidates did not test any hypotheses invariably made conclusions which fell in Level 1.

It must however, be noted that although there must be a Conclusions section, concluding statements in each part of the analysis section can also be taken into account. These should be indicated by markers by appropriate comments on the script. Similarly, where some evaluative statements on data collection techniques occur in the description of the methodology, these can be counted under *the Conclusion and Evaluation* criteria but it is still expected that a separate section entitled 'Evaluation' exists.

The evaluation was often the strongest part of a candidate's concluding section. Higher scoring candidates clearly identified both positive and negative factors and offered both sensible and viable solutions. Those that were in tabular form, tended to be less detailed with some solutions rather superficial e.g. 'count on more days' (traffic count) or 'smile to attract more interviewees' (questionnaire). The evaluation often provided a clear indication of just how much candidates understood about the tasks they had been asked to undertake as part of a group data collection exercise and just how much they felt a part ownership of the data that had been collected. Although, it was often thought to be hard work, one sensed that overall, the candidates had enjoyed the opportunity to go out in the field.

Administration

All centres got their samples to Cambridge on time. Most of the paperwork was completed accurately. These were included with the sample, and each script had the Individual candidate record card attached. Candidates were listed in candidate order on the Coursework Assessment Summary Form, which also helped moderation. Some centres however, did not include the correct number of scripts for their sample. This should be as follows;

0 – 50 candidates – 10 sample scripts
50 – 100 candidates – 15 sample scripts
101 + candidates – 20 sample scripts
201 + candidates – 10 per cent of the entry

Most samples comprised a balance of marks, including the highest and lowest scoring candidates. Please continue to double check the paperwork to make sure there are no mathematical errors either in the addition of marks on the Coursework Assessment Summary Form or in the transcription of marks to the MS1. Very few errors were detected this time round.

Many thanks for the conscientious approach of the markers who provided helpful comments on the scripts. These generally used the wording from the Generic Mark Scheme for Coursework Assessment to justify the marks awarded. These were very helpful and facilitated the smooth running of the moderation process. If your centre has not done so, it would be very much appreciated if markers make these comments (in pencil)

on the scripts for your next submission. Where a centre has more than one marker it is essential that an internal moderation takes place. There is evidence that these have been carried out by most, but not necessarily, all centres, and marks changed accordingly. Furthermore, the change mark for an individual candidate is not always reflected in the change in marks for individual assessment criteria, only the overall totals. These should be written on the Individual candidate record card. 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 has differed markedly in standard from the remainder of the markers and an internal moderation is the best way to resolve this issue.

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, Suggest.*
- When asked to compare or make judgements use terms such as *higher, lower*, rather than just listing comparative statistics.
- If comparing statistics, it is important to use paired data rather than one set on its own.
- Check you are using the resources that a question refers you to, e.g. *Support your decision with evidence from Fig. 2.1 and Table 2.1.*
- Attempt all completion tasks on graphs, tables or diagrams – not all the answers are on lines and in writing. Many candidates are missing out on relatively easy marks by not attempting these questions.
- Take into account the marks awarded. Examiners do not expect you to be writing outside of the lines provided so do not write a paragraph when only two lines are given – this wastes time.
- If you have to write more than the lines allowed indicate this with a phrase such as (*continued on additional page*). This is very helpful to the Examiner in finding your answers.
- When completing graph work use a dark-coloured pencil or pen as scripts are scanned for marking and light colours do not always show up. Always shade bar graphs and pie charts accurately.
- When you think you have finished, check that you have not missed a question out. Some questions are hard to find if they are on pages with a lot of graphs or maps. Make sure you have answered the questions on every page. This applies specially to questions where you are asked to complete tables, diagrams, graphs or maps.

General comments

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

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

2f where some candidates focused on advantages and disadvantages for immigrants rather than for the MEDC. As in some previous papers **Question 2e** required candidates to suggest possible improvements to the fieldwork task. This type of question is frequently included on this paper and is an area which centres should practise with candidates. However, it is not good practice to develop a series of generic improvements which may apply to all fieldwork, as such suggestions tend to be vague and not worth credit.

Comments on specific questions

Question 1

(a) (i) Nearly all candidates inked the types of migration with the correct definitions.

(ii) Many candidates showed a clear understanding of the difference between push and pull factors. Most referred to 'what makes you leave' (push) and 'what attracts you' (pull). Weaker answers did not make the distinction clear, e.g. 'they are why you leave a place' could be either push or pull. Some candidates gave example of different factors which were not credited by themselves but helped to clarify their explanation.

(b) (i) Most candidates found this question difficult. Some gained credit for the idea of 'asking anybody' but few candidates explained the use of random numbers. Candidates who stated that the technique is 'picking people randomly' were not credited.

(ii) The question differentiated well. Better responses referred to language issues, migrants not wanting to give correct answers, and suspicions of the migrants. A common incorrect answer was to focus on what was wrong with the questionnaire rather than why it was difficult to use it.

(c) (i) Most candidates drew the bar accurately. However, 4 per cent of candidates did not attempt the question.

(ii) Most candidates agreed that hypothesis one was correct and supported their conclusion with data. One common mistake was to give incomplete data, stating that 27 people came from Africa which is meaningless without identifying that this is 27 out of 40 people who were asked.

(iii) Whilst some candidates gave examples of secondary data rather than a definition, many did define the term accurately.

(iv) Candidates needed to make it clear that they were comparing two different years. Weaker candidates made statements which were not comparative or made a vague comparison such as 'There are more from Europe' but not specifying in which year.

(d) (i) Many candidates completed the divided bar graph accurately. There were some inaccuracies where the scale was misread when drawing the dividing lines.

(ii) Most candidates decided that the hypothesis was false and stated correctly that push factors were more important. Many candidates also gave correct supporting data.

(e) (i) Nearly all candidates correctly shaded the two countries.

(ii) Most candidates put the three countries in the correct order.

(iii) This question proved to be difficult for many candidates. The most common suggestion was that migrants would be unable to afford to move over a longer distance. Other creditable ideas referred to the migrants not knowing their destination or that transport would only be available to nearer destinations.

(f) Candidates who focused on advantages and disadvantages of the destination country usually scored well. The most common advantages were related to the workforce who would be skilled, low cost and would pay taxes. The most common disadvantages referred to competition for jobs with local people and potential areas of conflict. Some candidates misread the question and gave advantages and disadvantages for the migrants rather than the receiving country.

Question 2

(a) Many candidates correctly placed one of the characteristics under the appropriate heading, but there was much confusion about which characteristics increased and which decreased downstream.

(b) (i) The question differentiated well. Better responses made suggestions about the river width and depth and velocity, and some also wrote about accessibility of the sites and spacing between them. Weaker answers included mentions of safety, and possible obstructions in the river but did not explain them.

(ii) Many candidates understood that it was important to have consistent conditions when making their measurements. The better answers focused on changes in the weather which may affect the river's flow or amount of water in the channel. Weak answers merely stated 'to be more accurate' with no explanation of why this was important.

(c) (i) The question differentiated well. There were excellent answers from candidates who appeared to have done similar fieldwork and described the method logically by referring to the pieces of equipment. Some candidates did not describe accurately what the equipment is used for. A common error was to measure and time the distance travelled by the float, rather than measuring a set distance and then timing the float as it moved this distance. Some candidates suggested that the ranging poles are placed one or two metres apart which is too close to get a realistic time measurement.

(ii) Most candidates correctly plotted the results at sites five and six. A small minority misread the scale and put the plots in wrong positions on the graph.

(iii) Most candidates made the correct decision that the hypothesis was false. However, few candidates stated that there was no relationship shown between distance downstream and average velocity. Some candidates tried to justify a negative relationship having stated that the hypothesis was false. Candidates must be helped to understand that not all hypothesis questions lead to a positive or negative relationship between variables. Sometimes no relationship is an appropriate answer. Many candidates used data from two sites to show that river velocity was slower downstream, but some answers did not specify the sites which the data represented.

(d) (i) Many candidates showed little knowledge of the fieldwork technique used to measure gradient of the river bed. The question also had a high omission rate of 6 per cent which showed that some candidates did not try to interpret the photograph. Better responses gained credit for accurate ideas about placing the ranging poles a specific distance apart and using a clinometer to measure the angle, but most answers were vague. Weaker responses failed to identify or name the clinometer from the photograph and did not describe how it was used. There was little understanding of the purpose of the tape measure shown at the top of the pole on the photograph.

(ii) Most candidates completed the graph correctly, but a small minority ignored the graph outline provided and drew their own graph on the blank page. This was credited where correct.

(iii) This was a good discriminating question. More candidates chose false as their answer but a significant proportion made the incorrect choice. Candidates who made the correct conclusion often supported this with a correct statement describing the downstream gradient. Fewer candidates were able to give appropriate supporting data from two sites.

(d) This question resulted in a range of responses of varying quality. Better responses often referred to making more measurements and calculating the average, doing fieldwork at more sites, getting other candidates to check measurements, and repeating the fieldwork at different times to compare results. However, many candidates did not develop their ideas sufficiently and they were too vague to gain credit. Such answers as' make more measurements', 'use better equipment', and 'repeat the work' could apply to any fieldwork task.

(e) The final question required candidates to describe fieldwork methodology to measure other features of a river channel. Again there was a high omission rate of 7 per cent. The question differentiated well and better responses achieved full marks. Most candidates described how to measure from bank to bank, and how to measure the depth by inserting a ruler until it touched the bed. Better responses also developed their ideas by reference to keeping the measuring tape

straight or tight across the river, and measuring the wet section of the ruler to get the depth. Weaker responses did not make it clear that the tape measure went from bank to bank, or that the ruler was put into the river.

GEOGRAPHY

Paper 0460/42
Alternative to Coursework

Section 2

Key messages

A few tips to pass on to candidates:

- When answering hypothesis questions that ask whether you agree or not, always give your opinion first before any supporting evidence. This will usually be *Yes, No* or *Partially/To some extent*. Make your decision after weighing up the evidence then state it at the start of your answer. Some candidates provide the correct evidence but seem to forget to write down a decision. If you agree with the hypothesis, do not just repeat the wording of the hypothesis; you need to make a decision about it and state it too. There is no credit for just repeating the hypothesis word for word as an answer.
- When giving figures in an answer always give the units if they are not stated for you e.g. km, °C, mm.
- Take care when adding plots to graphs and use the key provided. Also take care when joining lines up between plots as marks are often awarded for this in addition to the plots. Any numerical answers should be clear e.g. a 4 often looks like a 9; a 2 like a 5, a 0 like a 6, a 1 like a 7.
- Read questions carefully and identify the command word e.g. *Describe, Explain...*and also the key words, for example if asked for *data* then statistics are required whereas being asked for *evidence* could involve description as well as statistics. It might be helpful if candidates underlined the key command words in a question.
- When asked to compare, 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. It is also important to indicate which statistics relate to which sites if appropriate e.g. in **Question 2(c)(iii)** when choosing two settlements to illustrate how services increase with population, it was not enough to say Settlement C had a population of 12,226 and 11 services; it needs to be compared with another settlement that is smaller with less services to prove the point e.g. Settlement E with 262 population and 1 service.
- Check you are using the resources that a question refers you to for evidence or data e.g. Table 1.1 (Insert) and Fig 1.2. Remember some resources will be in the Insert and not on the examination paper. If you are referred to a map or graph and a table, use statistics from the table rather than try and judge them from the map or graph which can cause inaccuracy.
- Attempt all completion tasks on graphs, tables or diagrams – not all the answers are on lines and in writing. Many candidates are missing out on relatively easy marks this way; in this session this was particularly the case with **Questions 1(a)(ii)**, **1(c)(iii)**, **1(d)(ii)**, **2(b)(ii)** and **2(e)(ii)**. Note that, where there is a completion task, the instructions are now **emboldened** to try and avoid you missing them out. It is better to use a bold pencil when completing graphs or diagrams so that errors can be erased and corrected; candidates who need to correct answers in ink often create a mess that is difficult to credit.
- Use a ruler and a sharp pencil to improve accuracy and presentation where required. This was particularly the case with the bar graphs and graphs that required a cross to be plotted.
- Take into account the marks awarded. Examiners do not expect candidates to be writing outside the lines provided so do not write a paragraph when only two lines are given – this wastes time.
- As all scripts are now scanned for marking, it would be preferable for candidates to write in black, using a sharp pencil, and make sure any plotting and shading of graphs stands out clearly.
- If you have to write more than the lines allowed, there are additional lined pages at the back of the examination paper to use. Indicate this with a phrase such as (*continued on page 16*). This is very helpful to the Examiner in finding the rest of your answers. Also make sure you have indicated the correct question number on extra pages; in this session particularly quite a few candidates gave an incorrect question reference which made it difficult to match to the correct answer earlier in the booklet. There is no need for you to request additional booklets.
- Bear in mind that if an Examiner cannot read your writing, a mark cannot be awarded. Make sure all your work is legible.

Section 3

General comments

Most candidates found this examination enabled them to demonstrate what they knew, understood and could do although **Question 1** – the Physical Geography question – proved to be slightly more difficult than **Question 2** as is often the case. Weaker responses gained credit on the practical questions, such as drawing graphs, and those of higher ability scoring well on the more challenging sections requiring explanation, comparison and judgement especially regarding hypotheses.

There is less general advice to be given for areas for improvement with this paper than with others. As there are no choices to make, it is difficult to miss sections out – though many candidates still do – and on this paper there were a few sections that indicated disappointingly high percentages of *No Response*. These were especially noticeable where graph completions were required i.e. on **Question 1(a)(ii)**, **Question 1(c)(iii) Question 1(d)(ii)**, **Question 2(b)(ii)** and **Question 2(e)(ii)** – especially as completing graphs proved to be a relatively easy task for candidates that attempted them. If there is a graph on the examination paper, candidates should expect to have to do a plot or plots on it; it would be very unusual if a graph on the exam paper – unlike in the Insert – was already completed. All the instructions for completing graphs and diagrams are **emboldened** so candidates should not miss these.

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

Apart from the ongoing issue of some candidates not attempting straightforward completion tasks on graphs, this session was notable for the lack of knowledge displayed of basic and common fieldwork techniques i.e. using a max-min thermometer, using a rain gauge fixed on a post, choosing sites for weather instruments, devising a good questionnaire and carrying out a land use survey. All these have appeared regularly in previous papers.

Question 1

This question was based on fieldwork carried out at a school in Seattle, USA where candidates measured atmospheric pressure, temperature and rainfall during November. It involved explaining how to use a max-min thermometer to measure temperature, how to measure rainfall using a rain gauge that was fixed off the ground and suggesting site factors for this instrument. They also needed to show that they knew how wind speed and duration were measured. Graph work included completing a line graph of temperature, a bar graph for rainfall and a wind rose for wind direction and speed. Candidates needed to make their own judgement about Hypothesis 1 in **Question 1(b)(iii)** and needed to support a *True* decision related to Hypothesis 2 in **Question 1(c)(iv)** The main areas of concern were **Question 1(b)(iii)** and **Question 1(d)(iii)** – both being the least well-answered questions on the whole paper apart from **Question 2(f)**.
Questions 1(a)(ii), **1(b)(i)**, **1(c)(iii)** were the best answered. **Question 1(d)(ii)** – completing the wind rose diagram – was, by far, the sub-section with the highest *No Response* on **Question 1**.

Question 2

This question was about fieldwork carried out by a group of candidates studying settlement and service provision in a rural area of Wales in the UK. It required knowledge and understanding of settlement hierarchies especially with regard to high and low order services and how population numbers could influence the service provision. They needed to identify high and low order services and complete tasks and graphs that related the size of settlements to the number of services including work on data from 1990 to compare with data from 2018. Their knowledge of the meaning of secondary data and what makes a good questionnaire was tested and they were asked to suggest how they might carry out fieldwork to investigate how land use had changed between 1990 and 2018 in Settlement H. Several different graph completions and other tasks were also required. Candidates had to make judgements about two Hypotheses; one on whether there was a positive correlation between population size and the number of services found in a settlement and a second Hypothesis on whether people travelled further to use high or low order services –

in both cases the Hypotheses were correct. There was just one major area of concern with answers – **Question 2(f)** where few candidates gained more than 2/4 marks on how they would carry out a land use survey. **Questions 2(a)(i)**, **2(b)(i)**, **2(b)(ii)**, **2(b)(iii)** were all well-answered. It should be noted that **Question 2(e)(ii)** had, by far, the highest *No Response* data on the exam paper closely followed by **Question 2(f)**.

Candidates found **Question 1** slightly less accessible than **Question 2** and there was a slight rise in the mean from 28.8 in 2019 to 29.6.

Section 4

Comments on specific questions

Question 1

(a) (i) While there were some very good explanations of how to use the max-min thermometer, this starter question did not prove to be accessible for many candidates. The syllabus expects candidates to, not only understand how the traditional weather instruments work, but also to know how they would be used to measure the various elements involved in weather and climate. Many candidates described how the max-minimum thermometer worked with detailed references to the roles of mercury and alcohol in influencing where the temperatures were read however this does not explain how the candidates should use the thermometer to measure these temperatures. The better responses suggested using a Stevenson Screen or putting the thermometer outside then once a day, or every 24 hours, checking where the bottom (not under or below each index) of the metal indices was to read the max-min temperatures before resetting the indices with a magnet. Many incorrectly suggested using the meniscus to read the max-min temperatures.

(ii) This was a straightforward plot at 8°C above the 13th November date which most did well. It was, though, surprising to note that a few candidates did not attempt it or just drew in the plot but did not complete the line graph. A few misread the vertical scale and plotted the 8°C too high at 9°C. Some completed the plot without completing the line; others drew a line without adding the plot for which there was no credit.

(iii) This was a good test of whether candidates understood the expression '*temperature range*'. The majority knew what this meant and correctly stated that the 21st November showed the largest gap between max and min temperatures. Quite a few however incorrectly chose the 9/10/11/12th or 19th which were all quite wide apart but not the most wide apart; some other dates had no logic behind them

(b) (i) By far the vast majority knew that a barometer was used to measure atmospheric pressure. A small number chose anemometer or hygrometer and a significant minority did not attempt the question.

(ii) Most candidates realised that taking readings at the same time would remove time as a variable and therefore allow for more consistent, reliable or fair results by comparing the readings of the atmospheric pressure at the same time. A few recognised that the time interval between readings would be the same but could not suggest why this was important.

(iii) There was clearly no positive relationship between atmospheric pressure and temperature so most candidates gained credit for recognising that the hypothesis was false or incorrect. Although that decision was correct, there then seemed to be a shared view across candidates that the relationship must be negative and so candidates spent a good deal of time searching for data to prove that was the case. In fact, as several candidates realised, while there was data that could be selected to show a negative relationship, there was also a good deal of data to show that there was no relationship i.e. temperature staying the same as pressure changed and vice versa. Those candidates that spotted this and provided supportive data as well as stating there was no relationship scored well however there were not too many of these which made this question one of the more challenging on the paper,

(c) (i) The instrument referred to in the question is fastened to a post well above ground level and this was clearly shown in the Insert photograph. This however did not deter many candidates suggesting that the gauge should be dug into the ground or listing site factors for locating a traditional rain gauge. The question wanted to know how the instrument would be used to measure

rainfall. The better candidates had clearly looked at the photograph and described how the rain would fall into the measuring cylinder through the funnel and how the candidate could read off the amount of rainfall in millimetres from the scale on the transparent cylinder without removing it from the post. They often added that the water would be emptied and suggested the check would be every 24 hours or at a fixed time. Candidates who ignored the photograph wrote about the traditional rain gauge i.e. dig it into the ground, remove the metal collecting can and pour the water into a measuring cylinder. They also assumed the units would be measured in millilitres despite the photograph showing a 1 metre scale. These comments were irrelevant to the question and the resource provided.

(ii) Once again, the candidates were referred to the instrument in the photograph in the Insert i.e. the gauge fastened to the wooden post above the ground. This was done reasonably well; most candidates chose open space or away from trees and buildings or away from potential vandalism by animals/people as the main factors influencing the choice of site. They could usually explain their choices e.g. to avoid interception, leaf drop or simply so that all the rain could be collected without interference. A few chose not to site the gauge on concrete surfaces but the gauge was already well above the ground so splashes from the ground into the gauge would not happen – once again this would apply to a traditional rain gauge not the one illustrated here. The photograph shows this transparent gauge is 1 m long so even if it was placed on the ground splashes could not bounce up into it. Flat ground was also an answer that was irrelevant in siting this gauge.

(iii) A high majority of candidates completed the bar chart well drawing the line correctly at 9.5 though a few misread the vertical scale and plotted it either just above or below 9.5. Some candidates did not attempt the relatively easy completion. If a graph is presented on this paper it will usually need completing; it appears that some candidates take a cursory look at the graphs and assume they are completed despite, in this case and others, emboldened instructions to '**Plot the rainfall…'**..

(iv) Candidates were told the hypothesis was true in the stem of the question but some responses tried to prove it was true; some disagreed and tried to prove it was false by looking for increases in pressure and rainfall. Others decided to include reference to relationships with temperature which was not mentioned in the question or the hypothesis. Those who recognised – or possibly knew from their learning – that rainfall rose when pressure falls and vice versa stated this correctly and stated that it was an inverse or negative relationship and then provided paired data to support this – usually 1016 mb and 2.3 mm rainfall compared with 993 mb and 12.8 mm rainfall. Centres need to make candidates aware that if they are referred to a graph and a Table, they should use the correct data from the table rather than undertake the more difficult task of estimating the figures from the graph.

(d) (i) This question was well done by most candidates who knew that an anemometer could be used to measure wind speed and a wind vane is used for measuring wind direction. Most could describe various aspects of using the anemometer including reference to it being placed on the top of a building, that the cups (not the anemometer) were spun by the wind and that speed was measured in km/hour or knots. Few however gave a description of how the speed was transferred to be displayed on a screen or meter. The wind direction answers were good in that most candidates knew that the arrow on the wind vane – not the wind vane itself – pointed to the direction in which the wind was coming **from** not **to**. In previous exam sessions candidates often stated that it pointed to where the wind was going or, vaguely, that it pointed at the wind direction which is an unclear answer. A few did not know the instrument names; a few tried to measure wind speed using a wind vane and others used ingenious methods involving throwing sand or grass in the air or inventing and constructing their own instruments by using bits of wood and metal – creative but not creditable!

(ii) The wind rose is a fairly common technique used to show wind directions over a period of time however this answer had a high omission rate with candidates not attempting it. There were mixed responses seen to this question. Those that did attempt this – the majority – drew a bar similar to the bars already present down South to the 4 day circular line for credit. A few candidates just wrote the figure 4 or 1 to 4 on the diagram instead of drawing the bar; others wrote down the dates when the wind was blowing from the south i.e. 11, 17, 19, 20 on days 1, 2, 3, 4. While what they did can be described, it defies logic to explain how they thought this would be the correct way to plot the data.

(iii) Quite a few candidates recognised that there was a relationship between the highest wind speeds coming from the SSW and/or the lowest from the SE or East; they also backed this up with

comparative data e.g. 21 km/h in SSW compared with 7 km/h in the East. Others were less selective grouping together several high-speed directions e.g. SSE/S/SSW and several low speed directions which were too vague for credit. A referred to the highest winds blowing **to** the SSW instead of **from**. A significant minority did not attempt this question which was unusual in that it is the graphs they sometimes miss out, not written answers.

Question 2

(a) (i) Although a large number of candidates did put the three services in the correct boxes. Weaker responses incorrectly referred to the airport as a low order service and the bus stop a high order service. Understanding the order of services in settlements and service hierarchies is a fundamental part of this part of the syllabus. A small number of candidates gave their own service examples in the table despite them clearly being asked to use those listed in the question.

(ii) Many candidates thought a *'low order service'* was one that was rarely used. Over half did know that a low order service was frequently used thereby gaining credit.

(b) (i) The vast majority of candidates judged correctly that the *General food store* was the service that appeared in the highest number of settlements in Table 2.2. A small number miscounted the ticks and chose the Primary school, others chose and wrote Settlement C presumably because it had the highest number of different services.

(ii) Almost all candidates successfully completed the table by adding the ticks and getting 2 as the answer.

(iii) The correct order of HDGA was given by almost all candidates for the credit available. A few put HDG in the incorrect order but did get A correct as the last choice. The error may have been caused by using Table 2.3 from the Insert instead of Table 2.2 which is in the exam paper and which the question referred them to.

(c) (i) Apart from those candidates that decided to describe how and why a census was carried out, this was done quite well as most candidates could state that it was secondary data because it had been carried out by somebody else or by others and not by the candidates. Many also suggested examples of where relevant secondary data from the census could have been found e.g. on the internet, books, records.

(ii) A few candidates did not attempt to plot the point but those that did put an accurate cross at the appropriate place. A few plotted it too far to the left on the correct line while others put it accurately in terms of population but at 4 services instead of 5 services. Other incorrect population line plots were seen at 1250 and 1450 instead of 1312. A few joined all the plots together and others added a best-fit line for reasons only known to them.

(iii) This was well-answered by most candidates. Many candidates gained the full available credit. Most stated that they agreed with the hypothesis being true. They then described the relationship between an increasing population and increasing services and supported this with paired data usually comparing Settlement C (12, 226 pop. and 11 services) with Settlement E (262 pop. and 1 service). A few only gave one settlement which is meaningless unless compared. Some mistakenly used Table 2.3 from the Insert so the data was incorrect.

(d) (i) The candidates generally answered this well with the best answers stating the service changes e.g. services decreasing by 2 in Settlement D and increasing by 6 in Settlement H. Others gave examples of a change e.g. the loss of a bank in D or the gain of a supermarket in H. It was important here that candidate made it clear which years they were referring to as it was not always obvious e.g. '*they had no bank'* was an answer that raises the question when – 1990 or 2018? Generic vague answers such as recognising the increase or decrease in services were not credited nor were inappropriate references to population changes which was not part of the question.

(ii) Candidates were less successful at suggesting why the service changes might have occurred although there were some good references to changing threshold populations and rural-urban migration as well as changes in population. Quite a few took a global view and wrote about natural disasters or high/low birth and death rates as well as immigration/emigration when the context of the question following from **(d)(i)** was possible reasons for changes in services in these two relatively small rural settlements.

(e) (i) It was important for candidates to read the question carefully here as it was not asking them to suggest three questions for a questionnaire. It required them to identify three features of a good questionnaire. Consequently, those who wrote three questions that could be asked gained no credit. The better responses understood what was required and gave answers that covered, for example, making sure that it was short, in simple language and easy to understand; making the questions relevant to the hypothesis and not asking personal questions. A few suggested *'introducing yourself'* but that is not part of the questionnaire – that is how you might politely approach people**.** Some described how they would sample people**.** Vague references to the questionnaire being polite or that the questions should be easy to answer were not credited.

(ii) This question had the highest omission rate on the paper and there were not many candidates who completed the graph correctly. By observing the three completed graphs it should have been clear that 0 was not plotted with a cross on any of the services and that if, for example, three people travelled 23 km to a clothes shop, then there should be three crosses plotted on the 23 km line – not just the 3rd cross.

(iii) The candidates that knew that the clothes shop was a high order service and that the hairdresser's was a low order service – as indicated by the arrow on Fig 2.2., did well on this question. They agreed with the hypothesis and recognised that people travelled the furthest to the clothes shop and the least to the hairdresser's. They then gave supportive data by comparing the average distances of 16 km and 3.9 km or comparing the maximum distance travelled to each i.e. 25 km with 8 km. Other candidates either judged the hypothesis as false or partially true which was wrong or decided that the clothes shop was a low order service and the hairdresser's was high order despite the arrow indicating the reverse on the resource**.** A few candidates compared the number of people travelling to the services instead of the distance involved.

(f) The better responses to this question suggested visiting the settlement and drawing their own map for the 2018/current land use to compare with the 1990 map. They would identify the land use and classify it using the 1990 key. They could take photographs of the current land use for comparison and ask questions of the older residents about changes since 1990. Quite a few candidates however did not attempt this question and, of those that did, it was apparent that there was limited knowledge of this type of survey. Weaker responses described how the village's services had changed from previous information with no reference to fieldwork and a great deal of emphasis on using secondary information. Some described how they would carry out a traffic or pedestrian survey including sampling techniques – others suggested using quadrats and ranging poles to identify small areas of land use. Most of these answers were irrelevant. With a high omission rate and a low success rating, this proved to be the least successful question on the paper.

GEOGRAPHY

Paper 0460/43
Alternative to Coursework

Key messages

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

- When answering hypothesis questions that ask whether you agree or not, always give your opinion first before any supporting evidence. This will usually be Yes, No, or Partially/To some extent. If you are asked to support your decision with data then statistics must be used from the resources referred to. Data is quantitative; evidence can be qualitative or quantitative. If you make an incorrect conclusion to the hypothesis you will gain no credit for the answer.
- When giving figures in an answer always give the units if they are not stated for you.
- Read questions carefully and identify the command word e.g. *Describe, Explain, Suggest.*
- When asked to compare or make judgements use terms such as *higher, lower*, rather than just listing comparative statistics.
- If comparing statistics, it is important to use paired data rather than one set on its own.
- Check you are using the resources that a question refers you to, e.g. *Support your decision with evidence from Fig. 1.2 and Table 1.1*.
- Attempt all completion tasks on graphs, tables or diagrams – not all the answers are on lines and in writing. Many candidates are missing out on relatively easy marks by not attempting these questions.
- Take into account the marks awarded. Examiners do not expect you to be writing outside of the lines provided so do not write a paragraph when only two lines are given – this wastes time.
- If you have to write more than the lines allowed indicate this with a phrase such as (*continued on additional page*). This is very helpful to the Examiner in finding your answers.
- When completing graph work use a dark-coloured pencil or pen as scripts are scanned for marking and light colours do not always show up. Always shade bar graphs and pie charts accurately.
- When you think you have finished, check that you have not missed a question out. Some questions are hard to find if they are on pages with a lot of graphs or maps. Make sure you have answered the questions on every page. This applies specially to questions where you are asked to complete tables, diagrams, graphs or maps.

General comments

Most candidates found this examination enabled them to demonstrate what they knew, understood and could do. The overall range of marks went from 4 to 56 out of 60 – a similar range to previous years – with weaker candidates scoring on the practical questions, such as drawing and interpreting graphs and tables, and candidates of higher ability scoring well on the more challenging sections requiring explanation and judgement especially regarding hypotheses. Most candidates answered **Question 2** slightly 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. Candidates should be encouraged to answer more succinctly and perhaps give more thought to their answers. Most points for teachers to bear in mind when preparing candidates for future Paper 43 questions relate to misunderstanding or ignoring command words, and to the use of appropriate fieldwork techniques and equipment. Particular questions

where candidates did not score well often related to them not carefully reading the question, for example **Question 1f(ii)** where some candidates explained how a wet-and-dry bulb thermometer worked rather than how candidates would use it in fieldwork. As in some previous papers **Question 2f(i)** required candidates to suggest a suitable methodology 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.

Comments on specific questions

Question 1

(a) (i) This proved to be a difficult opening question. Candidates wrote about the weaknesses of a maximum-minimum thermometer rather than problems of using it to measure actual temperatures at two specific times in a day in the city centre. Candidates suggested ideas such as inaccuracy in measuring, time consuming, not portable, needs checking every hour. Other answers focused on how measurements would be affected by shade, buildings, and pedestrian movement, all of which were reasons why the fieldwork was being done. Successful answers focused on the idea that the maximum-minimum thermometer was inappropriate for the task of measuring data at specific times. Other good answers referred to the possibility of pedestrians damaging or tampering with the equipment.

(ii) There were many good answers and many candidates suggested three appropriate advantages. Common correct answers included accurate measurements, easy to read result, quick to produce results, portable and durable. Weaker responses merely said that the digital thermometer was easy to use or reliable. Both of which were too vague for credit.

(b) (i) Almost all candidates plotted the temperatures correctly. There were a few inaccuracies caused by not reading the scale carefully, especially plotting the final cross at 27.4º not 27.2º.

(ii) Most candidates made a correct decision about the hypothesis and made statements in support of their decision accompanied by statistics. The question differentiated well as most candidates could see that site C did not fit the hypothesis, and other candidates detected the more subtle differences between site B and sites D and E. Other candidates recognised that site A had temperatures which were higher than the other sites. Weaker responses incorrectly agreed with the hypothesis. They did not realise that temperatures at site C were lower than all other sites.

(c) (i) Candidates had difficulty with this question which required them to compare evening temperatures between sites. Many answers were vague and just referred to change over time at one site, others focused incorrectly on differences between early evening and midday temperatures. Correct answers often made a simple comparison between temperatures at two sites.

(ii) This question was also one which candidates found difficult, in much the same way as the previous question. Candidates again compared temperatures between sites or compared evening and midday temperatures. The best answers compared temperature change at one site over the period of eight days or gave a general statement about when temperatures rose and fell over the time period.

(d) (i) Most candidates correctly identified the wind vane. A minority incorrectly named the wind dial.

(ii) Most candidates correctly drew the two bars. However, there was a high omission rate of 13 per cent. Some candidates plotted too inaccurately to gain credit and occasionally candidates reversed the two bars.

(iii) There were many accurate answers but weaker responses did not gain credit because of incorrect wording. Most candidates realised that the cups were turned by the wind but did not refer to them spinning or rotating, often saying they were ‘moving’ which was too vague. Some incorrectly stated that the anemometer rotated. Similarly some answers about how the measurement was shown were too vague to gain credit. ‘It shows the wind speed’ was a typical weak response.

(iv) Both figures were plotted correctly by most candidates, although 5 per cent of candidates did not attempt the question. Some candidates failed to gain credit because the crosses were not on the centre line or they wrote the wind speed next to the cross rather than the number of the day.

(v) Most candidates correctly identified the correct decision that wind speed varies more. Many candidates then supported this decision by referring to the range of wind speeds at the two sites. Fewer candidates gave appropriate supporting data to identify the difference in wind direction.

(e) Good differentiation was again achieved in this question. Many candidates realised that the buildings and trees would 'block' the wind or reduce its speed, and that temperatures would be lower in shaded locations. Weaker responses referred to shade and buildings but did not state how they changed temperature or wind speed and direction. Better responses also suggested how heat radiated from buildings and concrete increased temperatures.

(f) (i) Most candidates identified the correct definition. Those who failed to do this choose all other discriminators.

(ii) The question required candidates to explain how the instrument is used to measure relative humidity, not how the instrument works. This was a common error made by candidates who gave detailed explanations of the operation of the wet-and-dry bulb thermometer but not how it is used. Better responses gave clear steps in using the instrument from reading temperatures then calculating the temperature depression and calculating the relative humidity. In contrast weaker answers were vague in what temperatures were read and how they were then used. There was frequent reference to calculating an average temperature.

Question 2

(a) (i) Most candidates used the scale correctly to measure the width at 330 km. Some candidates chose 410 km or 460 km.

(b) (i) Most candidates identified that the economic sectors were tertiary. A small minority incorrectly thought that they were in the secondary sector.

(ii) Most candidates completed the pie chart correctly, although, once again, 6 per cent of candidates did not attempt the question. If candidates did not score two marks it was usually because they reversed the order of the segments rather than drawing the line inaccurately.

(c) Overall candidates did not interpret the photographs well. Better responses focused on manual work and the use of simple tools, or accurately described the work being done by the two people. However, many descriptions were vague such as 'mining' or 'digging with a shovel'. Weaker responses wrote about features of the quarry such as it being sandy or made value judgements about how difficult the job was, especially in the hot temperatures. These were not accepted as features of work.

(d) (i) The question differentiated well. There were many excellent answers about random, systematic, and stratified sampling. Stratified sampling was less popular as a response but usually well answered if chosen. Candidates described systematic sampling better than random. Candidates often made the mistake of describing random sampling as 'selecting people at random' which was not credited. Some candidates named random sampling and described systematic, and a small number of candidates gave answers which showed they had no understanding of the methodology.

(ii) This question also provided clear differentiation. Better responses gave correct age groups which fitted between the two age groups given and did not overlap. Weaker responses made the mistake of using 'over' or 'under' which was incorrect. Other errors were to begin the lower age range at 21 and end the upper age range at 59, or to include 40 in both age groups.

(iii) Most candidates drew both bars accurately. Again, there was an omission rate of 5 per cent. Some candidates drew bars which were too short, and others made the error of reversing the two bars.

(iv) The two elements of the hypothesis that over half of the workers are male and over half are from The Gambia, were both false and this was recognised by most candidates. Many candidates justified their decisions and gave supporting data.

(v) Most candidates completed the divided bar accurately. A small percentage incorrectly plotted the line at 86 per cent or reversed the sections.

(e) Most candidates chose the three correct statements that were all connected to money. Some candidates chose statement two rather than statement five.

(f) (i) The extension task differentiated well. The most popular suggestions were to focus on interviewing workers or managers, and observation of workers. Some candidates also referred to using secondary information regarding health and safety. Some candidates focused entirely on a questionnaire and some suggested suitable questions to include. There were also good descriptions of how to carry out a bi-polar survey, although some candidates only suggested this one idea. Weaker responses included references to interviews, observations, secondary data, and photographs but did not elaborate on how they would use these techniques. Some candidates suggested less viable ideas including working at the quarry to see what conditions were like. This was not realistic.

(ii) Better responses were aware that trying to carry out fieldwork at the quarry would be problematic. They referred to ideas such not gaining permission to enter the site, managers or workers not telling the truth or being too busy to answer questions, and information being unavailable on-line. Weaker responses focused on the quarry being a dangerous place for candidates to visit or the weather being too extreme, neither of which were accepted.

(iii) Most candidates identified the work as being dangerous or there being a risk of accident. Other popular suggestions were low pay or long working hours. A less popular answer referred to breathing problems due to dust. Weaker responses focused on problems with the weather such as sunstroke or dehydration which were not accepted as working problems for people who come from the region.