GEOGRAPHY

Paper 0460/11
Geographical Themes

Key messages

In order for candidates to perform well on this paper they should:

- Study the whole paper and resources provided carefully before starting to write answers, they should choose three questions, one chosen from each of **Sections A**, **B** and **C**.
- Answer all parts of the three questions they choose. A significant number of candidates omit all or some of those questions where there are no lines for the answer such as diagram completion e.g. 4 **(a) (i)** and graph completion e.g. 5 **(a) (i)**.
- Check the command words and words which indicate the focus and context of each question, to ensure only relevant information is included.
- Learn geographical terms and be confident in using them correctly.
- Have a wide range of case studies and choose them with care to fit the questions selected, including relevant place specific information. Do not include over lengthy and irrelevant introductions to any question.
- Use comparative words to make contrasts or describe differences when required.
- Take notice of the mark allocations and space provided in order to write answers of an appropriate length – answers which are too brief will not gain many marks and over long answers will waste time.
- Avoid using vague words or statements which should be qualified or elaborated, for example rather than 'pollution' they should state what type of pollution, or rather than 'facilities' should state which facilities, such as healthcare etc.
- In those questions worth five or more marks attempt to develop ideas or link them to other ideas.
- Complete, use and interpret various types of graphs, maps and diagrams, and be able to use them to support ideas. When the word 'only' is used in a question stem ensure that the answer is based entirely on the source material provided.

General comments

A number of candidates in this cohort performed well across the paper and showed excellent geographical knowledge and understanding, writing answers of a consistently high quality. However, as always, there was a wide range of marks and some candidates, whilst not performing as consistently across the paper, did make a genuine attempt at most parts of their chosen questions, enabling the paper to differentiate effectively between candidates of all abilities.

There was a relatively small number of rubric errors, occasionally these consisted of scripts where all six questions had been answered, however most candidates making rubric errors tended to answer three or four questions from the six, selecting two from the same section rather than one from each section.

The answers from candidates were usually in the correct amount of detail. Whilst some candidates wrote answers of excessive length others wrote answers which were too brief. Most however were guided by the mark allocations and space provided, the best responses being concise, yet sufficiently detailed and accurate in content. Some candidates made use of the continuation sheets at the back of the question and answer booklet, however some only needed to do so because they included far too much irrelevant material in their answers. It is important that candidates number any answers which they complete on these continuation sheets with the question numbers and sub-sections (not the page references of the questions).

Questions 1, **3** and **5** were the most popular questions. There were good answers to all questions, including those requiring extended writing, particularly the case studies on problems caused by rapid population growth and the causes of flooding. Whilst some responses included unnecessary general introductions with irrelevant information about the topic being tested, the best of these answers were well focused and

understood, with developed or linked ideas and place specific information. Whilst a considerable number of stronger responses did develop their ideas many were generic with little place detail to support them. Weaker responses were poorly focused with brief lists of simple points, sometimes in bullet points, not all of which were relevant. As always, some candidates did not score marks consistently across the paper as they did not respond correctly to key words such as 'local natural environment' in 4 **(c)** or 'local scale' in 5 **(c)** or 'natural environment' in 6 **(c)**.

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

Comments on specific questions

Question 1

This was the most popular question on the paper.

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

(ii) Many candidates correctly calculated the population density of Saudi Arabia, however some did not give the answer to the nearest whole number.

(iii) Most candidates gained some credit here by explaining clearly why areas like those shown in the photograph have a low population density, using a variety of answers outlined in the mark scheme. Weaker answers were statements such as 'desert, rocky, sand, hot' etc. which did not give enough explanation to gain credit.

(iv) On the whole this was less well answered, many candidates gained marks for ideas such as 'flat land, transport and tourism'. However more generic and vague statements such as 'jobs' and 'availability of water' did not gain credit.

(b) (i) This question was not well answered by many candidates as they did not clearly explain how each of the factors affects population growth rates. Net migration was also not well understood with many separate references to immigration and emigration without considering the balance between them.

(ii) This question differentiated well with stronger responses giving clear and detailed explanations as to why health care improvements can affect population growth rates. A whole range of answers were given, particularly the impact on death rates, life expectancy and specified improvements in health care. Weaker responses referred generally to 'better health care' which did not answer the question and should instead have detailed improvements in health care such as vaccinations or more medicines. Some candidates did not refer to health care improvements but instead considered other factors which affect population growth rates such as water supply and sanitation, and so failed to gain any credit.

(c) This question was well answered using a variety of relevant countries as case studies. Stronger responses gave a range of developed statements which clearly described the different problems caused by rapid population growth, together with relevant place specific detail. Weaker responses gave simple lists of problems and failed to develop their ideas fully.

Question 2

There were relatively few responses to this question, in particular very few strong responses were seen. A significant proportion of the responses were from candidates who made rubric errors.

(a) (i) Many candidates were unable to clearly explain what is meant by 'hierarchy of settlements'.

(ii) Whilst some candidates described the relationships well, many candidates were unable to clearly describe the relationship between settlement size and order of services provided.

(iii) The majority of candidates were able to gain full credit here, although some erors were seen.

(iv)   This question discriminated well. Good answers identified the ideas from the mark scheme and made clear comparative statements for each of the factors. However, many candidates did not appear to understand the terms, or gave a definition of the terms rather than answering the question set.

(b)(i)   This question was well answered with most candidates selecting the correct functions from Fig. 2.2.

(ii)   This question was generally not well answered. Candidates had a choice of the functions listed in Fig. 2.2 but most responses did not show an understanding of the concept of function and so were unable to explain why some settlements might develop a specified function. Many candidates simply described the benefits of functions, for example that ports provide jobs and income, which did not gain credit.

(c)   This question was not well answered as many candidates did not select one problem but instead described a whole range of urban problems. Credit could only be given for the causes and effects of one problem. The highest scoring answers often considered traffic congestion and gave a range of developed statements which clearly described the causes of the problem, such as increase in car ownership, and then considered in detail the problems faced by the people living there, such as air pollution causing breathing problems, and delays in journeys to work and loss of earnings. Other good answers considered the problem of lack of housing and described clearly the causes, such as lack of available land and large amounts of migrants and then the many effects of poor housing such as lack of hygiene and waterborne diseases etc.

Question 3

This was a popular question.

(a)(i)   Nearly all candidates who answered the question used the graph to correctly identify 7 oktas.

(ii)   Most candidates gained one mark here with a large proportion gaining full marks.

(iii)   Candidates used the graph well to write comparative statements comparing the weather on the two dates. Weaker responses gave the data but did not clearly compare the weather.

(iv)   This question differentiated well. Some candidates demonstrated a good knowledge of weather instruments, however some lost marks for not clearly identifying the characteristic, for example stating 'wind' rather than 'wind direction' where they chose a wind vane. Others did not read the question carefully and incorrectly repeated the weather characteristics measured on Fig. 3.1.

(b)(i)   The question also discriminated well. Most candidates scored well, many with three ideas as detailed in the mark scheme marks. Weaker responses referred to 'free from obstruction or not behind an object' which did not gain credit

(ii)   There were some excellent answers covering several ideas many of which showed good understanding especially references to precision and accuracy. The elimination of the need to constantly check instruments resulting in less time spent and/or potentially less errors was well expressed by some. Weaker answers stated that digital instruments are 'easier to use' and 'more reliable' which did not gain credit.

(c)   Stronger responses explained very clearly the causes of flooding of a named river using developed statements. Most candidates gained a few marks for a list of simple causes such as a large amount of rainfall, deforestation and urbanisation.

Question 4

(a)(i)   Where candidates answered this question there were many correct answers, however a significant number put the X on the Equator or midway between the Tropics and the Equator rather than on the high pressure area.

(ii)   This question differentiated well with close to the Equator and overhead sun being the most common answers. Weaker answers referred to being 'near the sun' or having 'most sun' or 'no clouds' and did not gain credit.

(iii) Some candidates clearly understood the reasons why inland deserts have low amounts of rainfall. However weaker answers did not focus on the inland location, some giving other reasons why deserts are dry e.g. high pressure.

(iv) There were some excellent answers with some candidates scoring full marks. Evaporation, transpiration, convection and condensation were well known though few candidates mentioned saturation or transpiration.

(b)(i) Most candidates used the photograph resource well and there were some good answers, typically for reference to sparse vegetation, thin leaves and bare ground.

(ii) There were some excellent answers with some candidates showing a detailed knowledge and understanding of how wildlife adapts to a hot desert environment. Weaker responses simply described but did not explain the adaptations, or some candidates did not read the question carefully and explained plant adaptations rather than how animals adapt.

(c) Answers were variable in relevance and quality. Stronger responses showed excellent knowledge and understanding and read the question carefully and so clearly described the impacts of deforestation on the local natural environment However, a substantial number of candidates misread the question and considered global impacts of deforestation or the impact on local people and so gained little credit as they often then only had time to make a simple and limited reference to local natural impacts.

Question 5

(a)(i) Where candidates answered this question some good best fit lines were seen with the plots forming either side of the best fit line. Most candidates drew a line which sloped in the right direction to indicate an inverse relationship. Weaker answers joined the crosses whilst many others drew curved lines which did not work for this data.

(ii) Most candidates gained either a mark for describing the relationship or for accurately stating the data, few candidates did both to gain full marks.

(iii) Most candidates failed to gain the marks here as they did not explain why there is an inverse relationship, instead they often repeated ideas from 5 **(a) (ii)**. Some candidates who understood the relationship were able to make valid points, for example about hospitals, food supply and clean water.

(iv) Most candidates gained at least two marks here, particularly for the concept that HDI is a composite indicator and its relationship with secondary education. A good number of candidates gained all four marks demonstrating a clear understanding of HDI.

(b)(i) All mark scheme ideas were seen however weaker answers did no more than refer to continents for one mark or failed to gain credit as they listed countries. Not all candidates used comparative statements to clearly describe the variation in energy use.

(ii) This was a good discriminator. Some very good responses covered several mark scheme ideas, with development in some cases. Weaker responses tended to provide simple ideas typically relating to transport, devices in the home or technology.

(c) Although most candidates had some idea of what transnational corporations are, many focused their answers on its impact on countries and economies as a whole rather than on people at a local scale. Many referred to their case studies, such as Nike, Coca Cola and Apple although not all candidates used them to clearly describe the impacts, instead often giving a lengthy introduction about the company itself which did not gain credit.

Question 6

(a)(i) Most candidates used the map to correctly identify the washing machine factory however some incorrectly suggested that the cement factory is an example of an assembly industry.

(ii) This question was generally well answered with most clearly contrasting the locations in some way.

(iii)   This question was not well answered by the majority of candidates. Perishability was occasionally mentioned in the correct context, but bulk and transport costs were rarely considered. Candidates instead frequently incorrectly considered potential customers.

(iv)   This question discriminated well. Many candidates wrote about the importance of road communications and the out of town location, points which were well explained by some candidates. Weaker answers suggested incorrectly that the factory would sell its products in the adjacent urban areas, or the idea that the factory owners would avoid an urban location to prevent pollution of various types.

(b)(i)   This question differentiated well. Most candidates gave examples of different industries in the north and south for 1 mark but few made the more general comparative points in the mark scheme, such as the fact that industry is more important in the north than the south.

(ii)   This question also differentiated well. There were some detailed answers covering several of the ideas in the mark scheme, or developing the ideas stated. Most candidates were able to make reference to the sources of carbon dioxide and a few developed their ideas to fully explain why this increases global warming. Generally, candidates were aware that the issue relates to carbon dioxide however there were still a few who incorrectly referred to ozone depletion and/or acid rain.

(c)   Where candidates understood the idea of how an economic activity can be managed, for example by planning restrictions or protection of ecosystems, they made some valid points. Various economic activities and areas were considered, Amazonia being common along with many areas where tourism is important. Both these examples worked well, however management strategies tended to be described simply rather than developed explanations of the strategies.

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- Answer all parts of the three questions they choose. A significant number of candidates omit all or some of those questions where there are no lines for the answer – these include graph and map completion (e.g. 1 **(a)**) **(i)**), 1**(b)(i)**) and 6**(a)(i)**) and selection of multiple choice options (e.g. 3**(a)(i)**).
- Check the command words and words which indicate the focus and context of each question, to ensure only relevant information is included.
- Learn geographical terms and be confident in using them correctly.
- Use comparative words to make contrasts or describe differences when required.
- Take notice of the mark allocations and space provided in order to write answers of an appropriate length – answers which are too brief will not gain many marks and over long answers will waste time.
- Avoiding using vague words or statements which should be qualified or elaborated {e.g. pollution (what type), facilities (such as?)}.
- In those questions worth five or more marks attempt to develop ideas or link them to other ideas.
- Complete, use and interpret various types of graphs, maps and diagrams, and be able to use them to support ideas. When the word 'only' is used in a question ensure that the answer is based entirely on the source material provided.
- Be able to describe a distribution from a map and distinguish this from describing the location of specific features
- Have a wide range of case studies and choose them with care to fit the questions selected, including relevant place specific information. Do not include over lengthy and irrelevant introductions to any question.

General comments

A number of very able candidates in this cohort performed well across the paper and showed excellent geographical knowledge and understanding, writing answers of a consistently high quality. However, as always, there was a wide range of marks and most candidates, whilst not performing as consistently across the paper, did make a genuine attempt at most parts of their chosen questions, enabling the paper to differentiate effectively between candidates of all abilities.

There was a relatively small number of rubric errors, occasionally these consisted of scripts where all six questions had been answered, however most candidates making rubric errors tended to answer three or four questions from the six, selecting two from the same section rather than one from each section.

Most responses seen usually contained the correct amount of detail. Whilst some candidates wrote answers of excessive length others wrote answers which were too brief. Most however were guided by the mark allocations and space provided, the best responses being concise, yet sufficiently detailed and accurate in content. Some candidates made use of the continuation sheets at the back of the question and answer booklet, however some only needed to do so because they included far too much irrelevant material in their answers. It is important that candidates number any answers which they complete on these continuation sheets with the question number sand sub-sections (not the page references of the questions).

Questions 1, **3** and **6** were the most popular questions. There were good answers to all questions, including those requiring extended writing, particularly the case studies on under-population, causes of an earthquake, changes which occur along a river and its valley, the causes of globalisation and the risks posed to the local natural environment by economic activity. Whilst some included unnecessary general introductions with

irrelevant information about the topic being tested, the best of these answers were well focused and understood, with developed or linked ideas and place specific information. Whilst a considerable number of well-informed candidates did develop their ideas many were generic with little place detail to support them. Less impressive responses were poorly focused with brief lists of simple points, sometimes in bullet points, not all of which were relevant. As always some candidates did not score marks consistently across the paper as they did not respond correctly to key words such as 'shape' in 1 **(a) (iii)** or 'employment structure' in 5 **(b) (ii)** and missed significant words like 'only' in 2 **(a)) (iii))** and 'local' in 6 **(c))**.

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

Comments on specific questions:

Question 1

This was the most popular question on the paper.

(a) (i)   Most candidates identified 3 million, however there were a significant number of candidates who missed the question out despite the fact that it was testing a relatively simple skill. A few responses wrongly gave the 'male' statistic whilst some used the 2015 pyramid.

(ii)   Many candidates did not refer to total population decrease but wrote about male and female decrease separately. Whilst they gained the mark for recognising a decrease these candidates did not score the second mark because they did not give the total decrease, giving separate male and female figures. Many of those candidates who did provide total statistics gave values within the tolerance, however others did not measure carefully enough to provide accurate answers. 'Around 6 million' was often seen for the 1980 value for example rather than the precise figure.

(iii)   Stronger responses from those who read the key word 'shape' referred to the 2015 pyramid being less triangular, narrower at the base and wider at the top for example. Some candidates referred to 'smaller' and 'bigger' rather than narrower or wider whilst many others wrote answers which did not focus on shape and so gained no credit. They concentrated instead on numbers of young and old dependents and economically active. Others attempted to explain the changes which was not relevant.

(iv)   On the whole this was well answered, many candidates giving comprehensive answers based on the ideas in the mark scheme. Weaker responses referred to migration or gave reasons for the increase in old dependents, whilst others briefly mentioned 'education' or 'health care' without sufficient elaboration to make the required points.

(b) (i)   Whilst many candidates scored all three marks, a significant number did not plot the percentage of 65+ figure. A few weaker candidates reversed the shading on the 2057 bar or misread the scale.

(ii)   There were some good answers covering many of the ideas suggested in the mark scheme, especially references to the workforce and increased government spending on pensions and health care for example. The question gave good differentiation with stronger responses frequently developing or linking their ideas for additional credit. Weaker responses stated that 'older people do not work' without explaining why this is a problem or gave irrelevant answers about the problems of countries with large numbers of people (e.g. traffic congestion).

(c)   There was a variety of case studies, with Australia and Canada being the most popular and successful choices. Many candidates knew what under-population was, but many did not fully develop their ideas about either causes or consequences. The better candidates developed ideas about physical reasons for low population, and the consequence of lack of labour, including its impact on the economy. Some candidates wrongly focused on natural causes and consequences of low population growth and some produced their China case study which was not appropriate.

Question 2

There were relatively few responses to this question, in particular very few high quality ones were seen. A significant proportion of the responses were from candidates who made rubric errors.

(a) (i) Urbanisation refers to the increasing percentage of people living in towns and cities. Whilst many candidates referred to urban to rural migration or urban areas getting larger many omitted the crucial reference this increasing percentage.

(ii) Most candidates identified the correct continents though a few stated 'Australia' rather than 'Australasia'.

(iii) The majority of candidates were unable to describe the distribution shown on the world map as uneven or state that areas are widely distributed though most candidates scored one mark by reference to two or more correct continents. Some made reference to the distribution of the cities shown on the map instead of the areas with over 80 per cent of population living in urban areas whilst others clearly were unfamiliar with the command 'describe the distribution' as they attempted to explain.

(iv) The question discriminated well. Stronger responses identified the ideas from the mark scheme such as work availability, education, water supply, food supply and health care, and tended to focus on pull factors, though push factors were also acceptable. There was a significant number of candidates who made generalised statements, such as better living standards, resources, services and facilities, which needed more precision for credit. Many weak candidates focused incorrectly on reasons for high birth rates.

(b) (i) Some candidates identified that the buildings had iron roofs and were tightly packed. Other answers from the mark scheme were less common and many candidates gave only unfounded value judgements, such as dirty or poorly built, rather than making use of specific evidence from the photographs.

(ii) Many candidates suggested ideas linked to lack of employment, small living space, water supply, crime rates, and the spread of disease. Better answers included developed or linked ideas, for example by referring to named diseases or types of crime or linking the lack of work to poverty and the associated problems caused by it. As always there were references to 'pollution', which without qualification does not earn any credit.

(c) Most candidates started off their answer by describing the problems caused by urban growth, many in too much detail at the expense of answering the question about what has been done to reduce them. Also, there were some responses which related to population management (e.g. one child policy or incentives to reduce high birth rates) rather than infrastructure and urban development. Those who did focus correctly on what has been done to reduce problems tended to only describe simple ideas such as 'new roads' or 'new houses' and place detail was frequently absent from answers. Stronger responses focused on a particular issue and improvement scheme, such as self-help schemes in squatter settlements or the development of specific public transport networks.

Question 3

This was a popular question.

(a) (i) Nearly all candidates who answered the question identified the divergent boundary, though there was a significant number of omissions.

(ii) The question differentiated well. Stronger responses focused on the key word 'destructive', but many candidates described subduction but did not explain how this linked to the destruction of plates. Many incorrect answers referred to the destruction caused to settlements by volcanoes and earthquakes.

(iii) This question also gave good differentiation. Most candidates referred to magma rising and the gap between plates opening. Fewer answers included the link between magma going through cracks to the surface or explained how new crust is created as a result of cooling.

(iv) There were many well-labelled diagrams of a volcano and most of the shapes drawn were recognisable as strato-volcanoes rather than shield volcanoes. Correct features labelled were usually the magma chamber, crater and vent. Common mistakes were in labelling layers of lava (rather than lava and ash), referring just to 'magma' (rather than the magma chamber) or referring to features other than those of the volcano (e.g. smoke). A number of candidates drew a diagram of a destructive plate margin rather than one of a strato-volcano.

(b)(i) The question also discriminated well. Stronger responses made valid comparisons about the length of time the craters erupted, the distance lava travelled or the area lava covered, along with the different directions of flow. Some responses sometimes confused the distance travelled with the height the lava descended. Weaker responses tended to refer to the lava travelling faster or being less viscous rather than directly referring to the evidence on Fig. 3.2, whilst others gave answers which were not comparative.

(ii) There were some excellent answers covering several ideas, many of which were developed or linked to show good understanding. Most candidates explained the difference in the ability to predict and give warnings, thus allowing time to escape or evacuate when volcanic eruptions occur. There were also many references to earthquakes affecting a larger area, particularly ones which are more populated. Weaker responses tended to briefly mention relevant ideas then going on to include much irrelevant detail for example about the destruction and the causes of deaths, the influence of tsunamis and aftershocks, and methods of reducing the impacts.

(c) Stronger responses referred to the location of their chosen example on the correct plate boundary, along with details of correct plate movement and the build up and release of pressure. Case studies, such as Port-au-Prince (Haiti), Christchurch and Sendai were frequently used and place specific detail incorporated. Some candidates identified inappropriate plates to link with their example and others named an area which was not specific enough (e.g. an entire large country such as Pakistan or Turkey).

Many weaker responses seemed to be confused by the term 'causes' as they explained what damage an earthquake caused rather than the processes leading up to an earthquake occurring.

Question 4

(a)(i) Most candidates correctly identified location C.

(ii) Many candidates did not identify the features shown in the photograph correctly. There were more correct answers for the plunge pool than the overhang which was often identified as 'waterfall'.

(iii) Many candidates did not explain the process of gorge formation. Vague answers referred to 'erosion of rocks' or 'increased erosion' but showed no understanding of how a gorge is formed through waterfall retreat.

(b)(i) Most candidates used Fig. 4.3 well, identifying that flooded areas were below 200, that flooding occurred around the confluence and near to one of the named cities or rivers. Weaker candidates simply mentioned rivers and/or cities without naming them or attempted to explain rather than describe.

(ii) The question differentiated well. Stronger responses explained fully, giving several ideas from the mark scheme, including reference to impermeable areas, increase in river volume after a confluence, deforestation and lack of management. Weaker responses were brief with a limited number of ideas, suggesting for example that the rivers flooded because the land was low or because it was near a river.

(iii) The most common suggestions were to build a dam or reservoir, and planting vegetation. Good answers also included ideas about raising the banks, deepening the channel and controlled flooding of some land use zones.

(c) Answers were variable in relevance and quality. Stronger responses with excellent knowledge and understanding described changes which are included in the Bradshaw model, by identifying landforms found at different stages of the river or describing the changes which occur in river processes and features downstream. Many weaker responses in contrast did not describe change but simply described random river features or processes or referred to just one part of its course. Others decided to write in detail about the formation of a specific landform (e.g. an oxbow lake) without attempting to answer the question set. A common misunderstanding was that a V shaped valley becomes U shaped further downstream.

Question 5

(a) (i) Most candidates identified the correct term but there were many variations. 'Indicator' was a common error.

(ii) Most candidates correctly ordered the states. Occasionally candidates ranked them in the reverse order.

(iii) Most candidates identified appropriate reasons for variation in HDI. Common suggestions included variation in education, healthcare, income, and natural resource availability. Less common correct responses included whether the state was landlocked or coastal, impacting its accessibility.

(iv) Few candidates showed much understanding of the HDI and how effective it is as an indicator of development. Many candidates vaguely referred to it as including 'different factors' but relatively few identified measurements relating to health care and education or referred to these as social factors. Only the best answers suggested the idea of HDI being a 'composite indicator' and that it could be used for comparison between countries or to show change over time as a result of the 0 to 1 scale used.

(b) (i) Many candidates correctly identified the employment sectors shown in the photographs, however weaker candidates made the mistake of simply describing the jobs shown in the photographs.

(ii) This was a good discriminator. Stronger responses made clear links between the employment structure and level of development. They then explained these links by through ideas such as mechanisation, level of skill and demand for services. Weaker responses did not make the required reference to employment structure and merely wrote ideas such as more industry provides better jobs and higher pay.

(c) Although most candidates had some idea of what globalization is, many focused their answers on its effects rather than its causes. Many referred to their case studies, such as Nike, Toyota, Nokia and McDonald's, though not all used them to explain the causes of globalization or did not develop their ideas fully. Most successful explanations developed ideas referring to specific developments in transport and technology, along with the improvement in global communications through the internet. A common error made by some candidates was to confuse globalisation with climate change and global warming.

Question 6

(a) (i) Most candidates plotted the bar correctly, but there was a high omission rate. A common error was to draw the bar at 125 mm.

(ii) Most candidates correctly identified two months from the graph.

(iii) Many candidates correctly described the relationships between precipitation and evaporation though some either wrote about precipitation or evaporation without referring to the relationship between them. Some candidates gave accurate supporting statistics, though others simply quoted statistics without any interpretation.

(iv) This discriminated well. Better answers suggested ideas included in the mark scheme, especially the use of a reservoir or dam, storage tanks, desalination, using underground water, and limiting water use, though some only gave one or two ideas. Weaker candidates sometimes did not refer to specific methods but wrote simply about saving water in the wet period to use when rainfall is low.

(b) (i) The most common correct responses used latitude references accurately and/or referred to 'around the Sahara Desert'. Many candidates failed to make any further relevant points and far too many used phrases such as 'above the equator' rather than using direction and 'on the edges' instead of referring to the coast. General references to the distribution as 'uneven' and 'linear' were seen but were not common.

(ii) This question differentiated well. Many candidates described negative impacts on farming and the consequences of that on food supply. High scoring answers also identified impacts such as the need to travel further to get water and eventual migration away from the affected area. Weaker responses tended to write brief and simplistic responses, including references to 'lack of water'

without specifying the impact of a shortage of 'drinking' water, whilst some wrote about the impacts in the natural environment rather than local people.

(c)   There were some detailed answers based on specific areas such as the Amazon Rainforest and the Pearl River delta and commonly referred to activities like logging, mining and tourism. Stronger responses answers included ideas which were developed by linking different effects such as water pollution to the death of marine life, and deforestation to the loss of animal habitats. Common mistakes made were to focus on the impacts on people and/or global effects, such as global warming, at the expense of local effects. Generally, there were few answers which included appropriate place specific information.

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- Answer all parts of the three questions they choose. A significant number of candidates omit all or some of those questions where there are no lines for the answer – these include the selection of multiple choice options, e.g. **3(a)(i)** and **5(a)(i)**.
- Check the command words and words which indicate the focus and context of each question, to ensure only relevant information is included.
- Learn geographical terms and be confident in using them correctly.
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- Be able to describe a distribution from a map and distinguish this from describing the location of specific features.

General comments

A large number of candidates in this cohort performed well across the paper and showed excellent geographical knowledge and understanding, writing answers of a consistently high quality. However, as always, there was a wide range of marks and some candidates, whilst not performing as consistently across the paper, did make a genuine attempt at most parts of their chosen questions, enabling the paper to differentiate effectively between candidates of all abilities.

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Most responses however were guided by the mark allocations and space provided, the strongest responses being concise, yet sufficiently detailed and accurate in content. Some candidates made use of the continuation sheets at the back of the question and answer booklet, however some only needed to do so because they included irrelevant material in their answers. It is important that candidates number any answers which they complete on these continuation sheets with the question numbers and sub-sections (not the page references of the questions).

Questions **1**, **3** and **6** were the most popular questions. There were good answers to all questions, including those requiring extended writing, particularly the case studies on causes of a volcanic eruption and how the tourist industry may cause problems for local people. Whilst some included unnecessary general

introductions with irrelevant information about the topic being tested, the best of these answers were well focused and understood, with developed or linked ideas and place specific information. Stronger responses tended to develop their ideas whereas weaker ones tended to be generic with little place detail to support them. Less impressive responses were poorly focused with brief lists of simple points, sometimes in bullet points, not all of which were relevant. As always some candidates did not score marks consistently across the paper as they did not respond correctly to key words such as 'dependent population' in 1 **(c)** or 'natural environment' in 3 **(b) (ii)** and missed significant words like 'only' in 1**(b) (i)** and 'global' in 3 **(c)**.

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

Comments on specific questions

Question 1

This was the most popular question on the paper.

(a) (i) Most candidates identified that 7 per cent are female in urban Ifakata, however some wrongly gave the total for males and females.

(ii) Most candidates gained one mark for correctly stating that there were more old dependents in rural areas. However, many candidates focused on direct differences in the percentages in each gender rather than describing the differences clearly and failed to score the second mark. Others attempted to explain the changes which was not relevant.

(iii) This question was usually well answered. The most common errors were for the evidence showing that many men have emigrated as the answer was often not comparative and so failed to identify the difference between men and women.

(iv) This question was well answered, and most candidates were able to suggest many reasons why birth rates are high.

(b) (i) Whilst many candidates scored all three marks, a significant number did not plot the percentage of 65 + figure. A few weaker responses reversed the shading on the 2057 bar or misread the scale.

(ii) Where candidates had clearly consulted the map full marks were often scored for stating that there is 'no pharmacy, hospital or health centre'. Candidates however often wrote in broad terms of 'no health care' or 'poor transport' and so did not gain credit as they were not identifying clear evidence from the resource. Some made no reference to the map evidence despite the question stem and wrote speculatively and sometimes in detail about factors leading to high death rates without tying their ideas to the map evidence.

(c) There were some excellent answers about the issues of rising old age dependency in MEDCs such as Japan, China or European countries. Answers about young dependency in LEDCs tended to focus narrowly on pressure on education and healthcare and so gained less credit. A large number of candidates however scored few marks as they ignored the key word 'dependent population' and simply repeated ideas from 1 **(b) (ii)** about general overpopulation issues at great length.

Question 2

There were relatively few responses to this question and few high quality answers were seen. A significant proportion of the responses to this question were from candidates who made rubric errors.

(a) (i) Most candidates were able to correctly identify the settlement pattern as linear or in a line.

(ii) Many candidates correctly identified that the housing is widely spaced, but few gained full marks here.

(iii) This question was generally not well answered. References to accessibility tended to be generalised such as 'along roads' rather than the specific crossroads/junction around which housing is clustered. The most common point was the presence of the rail link but few could explain how its connection to the nearby city would help growth due to commuting.

(iv) The question discriminated well. Good answers identified the ideas from the mark scheme such as traffic congestion and loss of farmland, however there was a significant number of candidates who made generalised statements, such as better living standards, resources and services without any specific reference to factors such as more jobs in specified land uses found in the rural-urban fringe, such as out of town shopping centres.

(b)(i) Few candidates correctly identified the functions shown in the photographs, instead providing descriptions of the land uses shown.

(ii) Some excellent answers made valid reference to terms such as 'threshold population' and 'range of a service. Most candidates were able to correctly identify that larger settlements have more people and tourists and so have more demand, but were unable to develop their answer further than this to consider ideas in the mark scheme such as the role of good transport links.

(c) This question was not well answered overall. Whilst there were some well developed answers on case studies such as the London Docklands, many candidates failed to focus on a specific land use change and to consider why this change had caused problems, instead writing about general problems caused by the growth of an urban area without reference to a specific change in land use.

Question 3

This was a popular question.

(a)(i) Nearly all candidates who answered the question correctly identified 600 mm, however there were a significant number of omissions.

(ii) This question was generally well answered with the correct graphs identified.

(iii) Many candidates stated the wrong graph and so failed to score any marks for this question. Where climate graph A was correctly identified as the desert then correct reasoning about low rainfall and high summer temperatures, or a high temperature range usually gained full marks. Some candidates made incorrect statements about diurnal temperature which cannot be deduced from an annual climate graph.

(iv) There were some excellent answers which correctly considered four clear ideas from the mark scheme. The high angle of the sun and high pressure were suggested by many candidates, however a number of candidates had clearly been taught the concept of atmospheric circulation in respect to the Hadley Cell however they failed to use this knowledge sufficiently well to answer the question set.

(b)(i) This question discriminated well. Good responses used the resource well to identify ideas such as illegal logging and lack of food. Some candidates however gave simple answers such as 'loss of habitat' and 'conflict' which did not gain credit as they did not use the full evidence provided in the resource.

(ii) There were some excellent answers covering several ideas, many of which were developed or linked to show good understanding. Candidates wrote clearly about potential impacts such as habitat loss, extinction and soil erosion, however some candidates incorrectly described the impacts on the tribe rather than on the local natural environment, or wrongly considered global impacts such as global warming.

(c) Perceptive and well-prepared candidates had clearly identified that the question was about global impacts of deforestation and so often gained full marks as they explained how increasing levels of carbon dioxide leads to global warming and the consequent effects of this, together with place specific detail as to where these impacts are occurring. However, a substantial number of responses repeated all the local effects they had given for 3 **(b) (ii)** and gained little credit as they often then only had time to make a simple and limited reference to global warming.

Question 4

(a) (i)   This question was not well answered, as many candidates failed to see that they needed to provide alternatives to two words, 'depth' and 'focus'.

(ii)   This question differentiated well. Many candidates correctly identified that the depth of focus becomes deeper to the east and used data from the resource to support their answer.

(iii)   Many candidates clearly understood that this was a destructive margin and could therefore clearly explain the reason why the depth increases from A to B. Weaker answers referred to being near the plate boundary without understanding that the boundary is not one point but a continuous zone along the surface where the plates meet, with the one plate sinking towards the east.

(iv)   This question differentiated well. Good answers were able to consider how well earthquakes can be predicted and that many large population centres are in earthquake prone zones, as having a job and children in school, family nearby etc. would mean that many stay and take the risk. There were also good references to earthquake mitigation measures in building design. Some candidates incorrectly considered that all earthquakes occur in volcanic areas and so incorrectly considered the benefits of living near volcanoes such as fertile soils and jobs in tourism.

(b) (i)   Most candidates used Fig. 4.2 well, clearly identifying the ways in which the room had been made safer. Weaker answers considered the problems in room A only, which did not gain credit.

(ii)   The question differentiated well. A few candidates gained full marks, however weaker answers did not consider the different reasons for the difference in scale of impact between earthquakes and volcanoes and instead wrote in detail about the secondary impacts of earthquakes, which failed to gain credit.

(c)   This question differentiated well. There were some excellent answers clearly explaining the causes of an eruption with developed statements and good place specific detail. Weaker responses wrote at length about the effects only and so failed to gain credit. Some candidates named a volcano but described the wrong type of plate boundary for the volcano named which limited their marks to 5/7.

Question 5

(a) (i)   Most candidates identified the correct answer.

(ii)   Most candidates gained full marks with reference to the equator and being in the west or coastal, as only one area of Africa was shown as having enough water on fig. 5.1

(iii)   More able candidates were able to gain full marks with ideas about deserts or lack of rainfall, rivers having dried up and being unable to afford water pipelines or storage. Some candidates however misinterpreted the question and discussed the reasons why there is a lack of clean water and so ideas such as using rivers or not being able to afford water treatment were not relevant.

(iv)   This question differentiated well with some candidates giving a range of reasons for increasing the supply of clean water, particularly the need for water for drinking and to reduce disease. Fewer candidates considered the fact that it would reduce the need to travel long distances for water or that it reduces pressure on healthcare.

(b) (i)   Many candidates were able to gain two marks with reference to the project being on the Thai/Laotian border and the river Mekong but few could give a geographically valid distance or direction about the proximity to Vientiane or that it is in the west of Laos.

(ii)   This question discriminated well. Most candidates identified the irrigation canals but few developed their answers using the resource to explain how agricultural production is increased, such as suggesting that the pumping stations will pump water out of the river and that drainage channels will drain excess water away from the fields. Many weaker answers gave irrelevant explanations of the benefits of a clean water supply for drinking.

(c)   This question also discriminated well. There were some excellent answers using examples such as Singapore's 4 taps with fully developed statements giving explanations, however there were also weaker answers where candidates knew their named country or area had dams and reservoirs but

could not explain their function and what else was necessary to actually clean and supply the water to people.

Question 6

(a)(i)   Most candidates correctly estimated the area of the National Park.

(ii)   Most candidates correctly described the direction but less candidates could use the scale effectively to give a correct distance.

(iii)   Many candidates correctly identified three things that have been done to attract tourists on Fig. 6.1.

(iv)   This question was usually well answered, particularly on the economic gains of tourism for an LEDC, as well as cultural exchange. Fewer candidates considered the indirect consequences such as the improvement to roads and infrastructure such as electricity.

(b)(i)   This was generally well answered. The question stem referred to the Lake District, however many candidates incorrectly stated it was a river in the first photograph. Weaker responses also referred to animals rather than wild animals or identifying them correctly as giraffes. Few candidates considered the savanna grassland as an attraction.

(ii)   This question was well answered. High scoring answers considered a whole range of approaches to manage tourism, particularly in terms of limiting numbers, restricting access to certain areas and banning hunting. Weaker responses tended to be about attracting tourists rather than conserving the area.

(c)   This question discriminated well. There were some excellent answers about places such as the Galapagos or Caribbean destinations with well-developed points, for example how issues like noise can impact the local people such as lack of sleep and being unable to concentrate at work, or for example, how traffic congestion makes it difficult for local people to get to work. Weaker answers detailed problems caused by tourism such as litter, noise or traffic congestion but did not explain how this impacts the local people. Some candidates misread the question and detailed impacts on the local natural environment which did not gain credit.

GEOGRAPHY

Key messages

- Good answers focused closely on the questions asked and were often very concise.
- Candidates should ensure that all parts of the questions are attempted and especially those completed on the data resources provided.
- Many of the questions are based on resources such as photographs and diagrams. Candidates should study these carefully before attempting the questions and ensure that they refer to them in their responses.

General comments

Responses to the questions ranged from very good to weak across the whole paper. There were a few excellent scripts which scored over 50 marks, many good scripts scoring over 40 marks and several weak ones which scored fewer than 20 marks.

Questions which required a longer response were generally legible and well written. Almost all candidates were able to complete the paper in the allotted time.

Question 1

(a) Most responses scored full marks in this section and made careful reference to the map key. The few errors that were made were usually in **part (iv)** where the incorrect spot height had been selected. Where multiple answers were given, no mark was awarded.

(b) Most responses selected the correct answer (*3850 m*) in **part (i)** and the majority also correctly stated *south-east* in **part (ii)**.

(c) A variety of incorrect answers were given in **part (i)** with only a minority correctly naming the feature (*river* or *stream* or *canal*). There were two possible answers in **part (ii)** and some responses correctly drew a labelled arrow to identify the D139 road. Many incorrect answers appeared all over Fig. 1.2 suggesting that some did not know how to tackle the task. In **part (iii)**, only a limited number of responses included a correctly completed cross section, with the ground rising then falling then rising before connecting with the printed line. A significant number of candidates omitted this part completely.

(d) There was a great variety of answers given, with *it is a mountainous area* and *there are seasonal rivers* most usually selected. Few noted that *the highest point is above 1400 m*.

(e) In **part (i)** most candidates made a good attempt at the question, describing the site of the settlement of Laveissière as being *near a river* and *along a road*. Some noted the *valley* and the *gently sloping land*. A few mentioned the *sheltered site* and gave the *height between 900 and 1000 m*. Most answers contained relevant points. In **part (ii)** almost all candidates scored all three marks from six possible answers.

Question 2

(a) In **part (i)** almost all candidates correctly completed **Fig. 2.1** and gained the mark. A few did not attempt it, perhaps because they did not notice the question. In **part (ii)** the majority of candidates scored one mark for identifying that the percentage of population born outside the country was

greater in the north than in the south. Those who scored the second mark recognised that rates were also *greater in the central areas* and that rates were *lower on the islands*.

(b)   In **part (i)** most candidates correctly stated that the population had declined by 2100. Some stated that the decline was by 84 per cent and this also gained credit. In **part (ii)** many candidates identified that decline was due to people *leaving to find jobs* and gained the first mark. They also recognised that the village was left with many old people but the link between this and the resultant high death rate or low birth rate was not generally noted. In **part (iii)** candidates needed to refer to Fig. 2.2 in order to gain the mark. New businesses and more workers were most commonly correctly identified. A variety of other answers were given which did not relate to the resource so did not score. In **part (iv)** not all candidates suggested a problem as required. *Racial tensions, loss of culture, competition for jobs* and *migrants unable to speak the local language* were all acceptable answers.

Question 3

(a)   In **part (i)** most candidates were able to plot the points and correctly join them up. Unfortunately, a significant number of candidates omitted this part completely. In **part (ii)** virtually all candidates correctly stated that the *industrial* land use had showed the greatest increase in the time period. In **part (iii)** very few candidates scored both marks. Many responses appeared to lack understanding of the rural-urban fringe. Suggestions including the *proximity of labour* and the *market in the town*, *cheaper land, space available* and *good road links* all gained credit.

(b)   The majority of responses did not focus sufficiently on the photograph (Fig. 3.2) and gave rather general ideas rather than advantages. Amongst the acceptable answers, the *green environment and open space, the wide road, proximity to the city centre* and *newly built housing* could all be clearly seen.

Question 4

(a)   In **part (i)** many candidates correctly calculated 103 years. A significant number, however, incorrectly stated 99 years. In **part (ii)** almost all responses were awarded the two marks. *Flooding, lava flows* and *ash* were all valid examples of hazards mentioned in Fig. 4.1.

(b)   Responses to this question were often vague and often did not score many marks. References to the use of *seismometers, thermal imaging, laser surveys, gas emissions* and *animal behaviour* were all acceptable answers.

(c)   Most candidates made good use of Fig. 4.2 and were able to explain that the plates were divergent' and that magma rises. Some referred to Iceland's position on the Mid-Atlantic Ridge but few discussed processes such as melting in the mantle leading to eruptions.

Question 5

(a)   In **part (i)** most candidates correctly identified **V** as the area of deposition and **X** as the area of erosion. In **part (ii)** few candidates identified the *trees falling, the disturbed layers* or *slumping of the slopes* on Fig. 5.1 as evidence of erosion**.** Some incorrectly referred to Fig. 5.2 and credit could not be given for the undercutting shown at X on this.

(b)   A variety of answers were offered. *Tree planting* was commonly correct, but there was confusion about whether *steep slopes* (incorrect) or *gentle slopes* (correct) were also likely to reduce river flooding.

(c)   A large number of candidates scored all three marks.

Question 6

(a)   Most responses described the coffee bushes accurately (*green, large/pointed leaves* and *in rows*) gaining all three marks. Some wrote about the trees shown and credit was given if they linked them to giving shade to the coffee bushes.

(b)   Candidates were generally aware of the advantages of using both fertilisers and pesticides and scored well.

(c)   Few responses scored good marks in this section and many did not consider the benefits of small-scale commercial coffee farming for local people but talked in general about farming. Some candidates recognised that it gave *jobs to locals* and *an income* but did not develop their ideas further. The ability of people to then be *able to purchase goods and services, the skills that they learned* and *the protection of their way of life* were rarely mentioned. A few did recognise the benefit of the general development of the local economy and area.

GEOGRAPHY

Paper 0460/22
Geographical Skills

Key messages

- Care is needed when the question refers to physical features, natural features or human features (see **Question 1 (e)**). Misunderstanding these terms can lead to candidates writing irrelevant answers.
- The term *relief* is still misunderstood by some candidates (see **Question 2(b)**).
- When describing distributions on maps candidates should avoid non-geographical expressions such above, below, left and right and refer to compass directions (see **Question 2(a)**).
- In photograph questions candidates should focus on what can be seen in the photograph rather than speculate on what cannot be seen (see **Question 5(c)**).

General comments

Candidates performed equally well across the six questions with certain aspects of all six questions proving more difficult. There were many outstanding scripts with many candidates scoring marks in the fifties. There were few weak scripts.

Question 1

(a) Many candidates were able to score full marks on this section, showing good skills of finding features on the map and identifying them using the key.

(b) Many candidates scored three marks by noting services provided for tourists such as *campsite*, *museum*, *tourist information centre, seaside resort, casino* and *hiking trail*.

(c) Candidates usually scored at least two marks when comparing features of the two areas and many scored full marks. There was little pattern to the incorrect answers, although *land over 25 m above sea level* caused problems in some responses.

(d) The stronger candidates scored full marks on this part of the question. The distance along the road was *2875 m* and the compass direction was *south east*. Most candidates gave correct answers for these, but the bearing and grid reference proved more difficult. For the bearing a tolerance of *123°–126°* was permitted. The grid reference was *932704/5* with tolerance allowed on the sixth figure.

(e) Candidates frequently scored full marks when describing the natural features of the coastline. A wide variety of points was given credit such as *bay, headland, beach, tidal mud flats, flat rock, island, intermittent water course, marsh* and *forest*. A minority of responses gave human features rather than natural features and did not gain any credit.

Question 2

(a) In both parts of this question candidates had to describe features of the distribution of areas on Fig. 2.1. The areas with 0–5 people per km^2 were *along the Equator* (or *in the north*) with a second area *in the south*. Much of both areas were *inland* or *away from the coasts*. In contrast, the areas with more than 40 people per km^2 were *coastal*, particularly *in the east* and *north west*. Full marks were common although some candidates did not gain credit because they used expressions such as below the Equator or above the Tropic of Capricorn.

(b) Most candidates knew that a relief map referred to altitude but significant numbers either omitted the question or referred to rainfall or aid. The second part of the question required candidates to

describe the relationship between population on Fig. 2.1 and relief on Fig. 2.2. This proved to be difficult for many candidates who needed to refer to the lowland below 200 m being sparsely populated while higher areas were more densely populated.

(c)   When using the information provided to suggest why there were areas of high and low population density along the Equator, candidates were given credit for simple descriptive points such as the *variation in altitude* or *variation in distance from the sea* or, alternatively, reasons such as *high altitude being coole*r or the *coasts having advantages for trade.* The quality of response was variable. Weaker candidates needed to use Figs. 2.1 and 2.2 as instructed to gain higher marks.

Question 3

(a)   Almost all candidates were able to plot the number of district towns on Fig. 3.1. They were equally successful in recognising the *inverse relationship* between the number of settlements and position in the settlement hierarchy. They usually recognised that the number of local service centres (LSCs) was *lower than expected* (or *lower than the number of service centres (SCs)*).

(b)   When describing the distribution of settlements on Fig. 3.2 credit was given for noting the fairly *even distribution* with slightly *more in the south*, *along the roads* and *close to the boundaries*. Many candidates noted the link to roads, but the other points proved more difficult.

(c)   Most candidates realised the Templemore had not grown into a more important settlement because it was *away from the main roads*. Some noted that Cahir had grown into an important settlement because it was at a *road junction* (or *route centre* or *nodal point*). Those who simply said that it had good road links were not given credit. Most candidates realised that the location of Clonmel as the regional town of County Tipperary was unusual in that it was *close to the county boundary*. The better candidates went on to say that this meant that it was isolated from the rest of the county.

Question 4

(a)   Candidates were required to add labels to the field sketch to show the features of the coastline in Fig. 4.1. A number of candidates omitted the question. Credit was given for points such as *cliff, headland, stack, stump, rock layers, notch, cave* and *wave cut platform*. Responses usually managed scored at least four of these points and their labels were very clear. Weaker responses confided stack and stump.

(b)   When suggesting how the feature in the centre of the photograph (the stack) might change in the future most candidates were able to score two marks by referring to *undercutting by coast erosion*, *collapse* of the stack which would result in a *stump*.

Question 5

(a)   Candidates generally scored two marks for selecting the correct statements about the distribution of areas of hot desert climate. These were: *they are mostly between 30 °N and 30 °S* and *they are mostly on the west sides of continents.* The most common error was to include *they are in temperate latitudes.*

(b)   Candidates generally scored three marks for selecting the correct statements about the climate shown in Fig. 5.2. These were: *there is low annual rainfall, most rain falls in winter* and *there is a high annual range of temperature.*

(c)   When describing the features of the vegetation shown in Fig. 5.3 credit was given for points such as the *tall tree* with a *wide trunk*, the *trees far apart*, and *not in leaf, scrub* and *dry grass*. All these points were frequently given by candidates. The second part of the question required candidates to use evidence from Fig. 5.3 only to explain how the vegetation was adapted to the desert climate. Candidates generally referred to the *bulbous trunk to store water* or the *small or lack of leaves to reduce transpiration.* Some candidates ignored the instruction to use evidence from Fig. 5.3 only and described the roots of the vegetation which were not visible in the photograph, which did not gain credit.

Question 6

(a)   Most candidates recognised *oil* and *natural gas* as the two non-renewable fuels. *Biofuels* was a common error.

(b)   This question tested candidates' knowledge of energy, and the benefits and disadvantages of nuclear power. The quality of the responses was very variable. There were some outstanding answers while others lacked any detailed knowledge of the topic. The points most commonly credited included: for – *small amounts of fuel are needed to produce large amounts of energy, uranium will last a long time, it does not produce greenhouse gases, it is not weather dependent,* and *it provides jobs*; against – *concerns about safety or health issues, disposal of waste issues, the high cost of building, the link to nuclear weapons* and *security issues such as terrorism*.

GEOGRAPHY

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| **Paper 0460/23** |
| **Geographical Skills** |
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Key messages

- When candidates use the additional pages it is helpful if they assign question numbers to their additional work. It is also helpful if they direct the Examiner to the additional pages, from the original question space.
- Examiners can usually decipher rushed handwriting, but skills papers often include numerical answers and candidates need to ensure that they write digits clearly. Units should also be included.
- Similarly graph plots are best carried out with a sharp pencil so that the exact point is clear and if the candidate wishes to change their response this can be done more easily.

General comments

This paper was comparable with previous sessions, testing a range of geographical skills and mapwork applications. **Question 2** proved to be the easiest on the paper, while **Question 6** was found by candidates to be the most challenging. There were some excellent responses to **Question 1**, which was pleasing to see as the map contained a lot of information, particularly in the key, and candidates handled this well.

Question 1

(a)   The 1:25 000 map was for Thiezac, in France and candidates were directed to look at nine grid square in the south. Fig. 1.1 showed a number of features within these grid squares and candidates were asked to identify these.

Feature **A** was a *railway* and this proved to be the most difficult to identify; the most common error being *cart track*. Feature **B** was a *place of interest*, feature **C** was a *rock escarpment and* feature **D** was a reservoir. The land use at **E** was *deciduous woodland*. A small number did not understand the term land use, as they knew that it was deciduous woodland, but thought that they should think up some kind of use for that land.

The height at spot height **F** was 1224 metres. Common errors were 1352 and 1014, these being similar positions in the adjacent squares. However, the majority had the correct answer.

(b)   Fig. 1.2 was a cross-section along northing 85 and candidates were asked to use a labelled arrow to show the position of the N122 road. An arrow showing the position of Confolens was provided as an example. The majority of candidates had located the road in approximately the correct position, but not always sufficiently accurately. There were also quite a few omissions on this part.

Omissions were nearly as high on **part (ii)**, where candidates were asked to complete the cross-section. Examiners were looking for a clear rise and fall, peaking between 1150 m and 1200 m. Many candidates showed the hill but often peaking too low for the second mark.

(c)   The stem of the question involved quite a lot of information, but once candidates had located the footpath, they were able to select from multiple-choice options for **parts (i) – (iii)**. Most had the correct overall direction of north west, but fewer selected the correct distance of 2300 metres. **Part (iii)** proved to be the easiest section on **Question 1**, with most candidates correctly identifying *steep slopes* and *deciduous woodland* as the features passed on the footpath.

In contrast **part (iv)** was the most difficult part of **Question 1**. Answers across a 10° range were accepted (316°– 326°) due to the difficulty of determining the exact point of both the spot height

and the cascade. However, those with incorrect answers were often completely inaccurate, possibly due to setting up their protractor incorrectly or measuring anticlockwise.

(d) Fig. 1.4 directed candidates to two grid squares, and they were asked to describe the relief and drainage of the area. Many commented on the *high land* with *steep slopes*, and some went on to describe the *V-shaped valleys, rock escarpment, spurs, ridges* and *concave* or *convex slopes*. Candidates did not all spot the highest point of *1236 metres* in the north west corner but they did realise that the land was *higher in the north* or *lower in the south*.

Most candidates scored the majority of their marks for comment on relief, but they had to get at least 1 correct drainage point for full marks. Most commented that the rivers were *flowing south*. Within the designated squares there were *three* separate stream systems, each with a *narrow river* flowing roughly *parallel to the others*. Some spotted the *seasonal rivers* forming potential tributaries.

As always, a small minority did not understand the terms 'relief' and 'drainage' and wrote instead about other features, usually settlement and leisure activities.

Question 2

(a) Fig. 2.1 showed the regions of Italy and gave population change information for four of them. Candidates had to identify the region with the highest birth rate (*Trentino Alto Adige*), the highest death rate (*Calabria*) and the largest population decline (*Calabria*). This was straightforward reading of data and almost all candidates scored for three correct responses.

(b) Candidates were then asked to compare the population growth in the northern and southern regions. Although this could have been done by mentioning one of the regions and using a comparative word (higher in the north), most candidates wrote a comprehensive answer, referencing both regions.

(c) For **part (c)**, candidates were given the formula connecting population growth rate with birth rate, death rate and migration and were asked to calculate the migration rate for two regions. Trentino Alto Adige, with its high population growth, was experiencing an inward migration of *+4.2 per thousand*. Calabria's negative growth rate was not fully accounted for by natural population change, with outward migration of *–1.7 per thousand*. There were many correct calculations, though some had the minus sign on the wrong figure or had omitted it completely. Others, despite being given the formula, simply added everything together.

(d) Candidates were then asked to suggest two pull factors attracting people to the northern regions of Italy. Most mentioned *jobs*, or the possibility of *higher wages* and many also commented on *healthcare*, *education* or *standard of living*. Less common but also valid were *family or friends already there* and *shopping* or *leisure* opportunities.

Question 3

(a) Fig. 3.1 showed air pollution in New Delhi across the latter half of both 2016 and 2017. Candidates were asked to identify the lowest level of air pollution reached in November 2016. This was shown by the dashed line, which just touched the line for *100 µg/m^3* in November 2016. Many candidates had the correct answer.

In **part (ii)** candidates had to identify the month and year when pollution levels were between 100 and 400 µg/m^3. The only month that stayed entirely within those bounds was *December 2016*. Answers were usually correct.

Candidates then had to consider the graph as a whole and give two similarities and one difference between the overall trends shown. For the similarities, many wrote about the *low* and *similar levels in July, August and September,* with the *rising trend through October* to the *peak in November*. More generalised comments that were valid were the *overall increase* and the *fluctuation* of the levels. However, some simply said that the trends were similar, which was implicit in the question. Those that lost just one mark usually failed to express a clear difference. They could have mentioned the *higher overall peak in 2016*, the *lower overall trough in 2017* or the clear differences occurring in *October (2017 higher)* or *November (2016 higher)*. However, it was important to stick to the overall trends so mention of any of the myriad of minor variations was not relevant.

(b)   Candidates were then asked to suggest three groups of people most likely to be badly affected by air pollution. The three most popular answers were *children*, the *elderly* and those with *asthma* or *a lung condition*. Some derived other valid answers from considering activities or location such as *those who live beside a main road*, *commuters* and *people who work in certain industries.*

Question 4

(a)   Fig. 4.1 was the photograph on the Insert of Spurn Head, a spit, and candidates were asked to describe the feature. The best answers focused on the shape of the landform, describing its *long*, *thin* shape, with the *change of direction in the middle* and the *wider area at the end*. Other candidates homed in on the land use and referred to a *type of vegetation*, or human features such as *buildings*, *lighthouse*, *jetty*, *road*, *farmland* or *wind farm*. The weakest responses did not address the question, but instead wrote about the formation of the feature.

In **part (ii)**, candidates were given 4 options and had to select the process leading to the formation of a spit. Most correctly selected longshore drift, though some changed their mind several times before settling for this. The most common incorrect answer was erosion.

(b)   Fig. 4.2 showed how spit had changed over time. Precise language was necessary here. The spit became *thinner*, *longer*, less *curved* and *moved west or north west by 5 – 6 km*. Most candidates made at least one valid point, while those who failed to score had often focused on the retreating coastline rather than the spit.

In **part (ii)** by far the majority of candidates had opted for the conclusive answer of Ravenser Odd.

Question 5

(a)   Fig. 5.1 showed air pressure across Australia and candidates were asked to give the air pressure in Townsville, which was *1004 mb*. This was straightforward and most candidates had a correct answer. However, few knew what was meant by mb and many omitted the question. Slightly more knew that a *barometer* would record air pressure but the majority were able to successfully complete the 1016 mb isobar on Fig. 5.1. Errors here were usually towards the eastern side of the diagram and some had not noticed the line to connect up with in the east.

In **part (v)** candidates had to describe how pressure varied across the area in Fig. 5.1 and this time statistics were needed in the answer. Those who described the location of both the high pressure and the low pressure, as well as giving the maximum or minimum pressure, scored 3 marks. Few, however, had a correct value for the lowest pressure as they had used the given numbers, instead of extrapolating to the lowest isobar. A few confused isobars with contour lines and wrote some very convoluted responses involving both pressure and height. Some failed to use the correct units (mb) in their answers.

(b)   Most candidates successfully plotted the data from Table 5.1 onto Fig. 5.2

Question 6

(a)   Fig. 6.1 showed a systems diagram of a manufacturing company and candidates were asked to complete it by correctly inserting electricity (an input) and car parts (outputs), with both needing to be correct for the mark. Many candidates did do this correctly, though some thought that they had to fill all of the empty lines on the diagram, which they did either by repeating electricity and car parts, and thus spoiling their answer.

(b)   Fig. 6.2 was a photograph, in the Insert, showing aluminium tanks being moved along the Erie Canal and candidates were asked to suggest why the tanks were transported by boat. Many commented on their *bulk or weight* and that they might be *too large for road transport*, while a boat could *move multiple units more safely* and for a *cheaper price*, both *avoiding congestion*. Some pointed out that *less labour would be needed*, and that *transport time may not be important*. The weakest answers focused on negative reasons to not use other transport, such as air transport being costly and dangerous or vague comments such as faster, more convenient or easier.

(c)   Finally, candidates were asked to give reasons why manufactured goods would be transported long distances around the world. Some based their answer on the example in the stem of the

question, but a more generic answer was equally valid. Commonly candidates referred to *cheaper labour* or *land* and *availability of raw materials, labour* or *skill*. They also pointed out that the *demand* or need for the item was in another country, while there was *no local market*. Other valid points that were used less frequently included *differences in technology*, *government investment*, *economies of scale*, *differences in health and safety* and *labour laws* and *containerisation*. Those who read the question carefully usually wrote comprehensive answers, gaining most of the marks. However, some wrote about globalisation and growth of trans-national companies or focused on making money, without addressing the specific question. Many mentioned reduced production costs but then did not elaborate.

GEOGRAPHY

| **Paper 0460/03** |
| **Coursework** |

Key messages

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

The original entry for the June 2021 session was slightly reduced compared with the IGCSE Geography Coursework Paper in June 2019. However, this number declined markedly due to the COVID-19 pandemic across the entire world, with some centres withdrawing at the last minute, even after their coursework submission had arrived at CIE. An increasing but small number of centres outside of the UK have opted for 0976 03 rather than 0460 03 paper.

It was reported by the team of Moderators that nearly all candidates clearly followed the Route to Geographical Enquiry and that year on year, the quality of coursework submissions from established centres continued to improve. They were also impressed by the way some centres were able to adjust to the increased constraints imposed by the COVID-19 Pandemic. Indeed, some turned it to their advantage, for instance comparing numbers of tourists or pedestrian and traffic counts at the present with data collected by previous cohorts of candidates before the COVID-19 Pandemic restricted movement of people.

It is strongly urged that centres read and take note of this report's content together with the *Moderator's Comments on school-Based Assessment of Coursework* which each centre receives. These are the main vehicles for feedback to centres, particularly since the Outline Proposal service will be phased out by CIE after November 2021, so this will be the last opportunity to get plans vetted. The latter is to be replaced by more in-depth information on the CIE website.

Once again, it must be stressed that this report focuses on points where the moderation process could have been a little smoother or where candidates could improve their coursework in order to access the higher grades. Where there were problems, it usually stemmed from centres whose staff had not received training on how to run and/or mark the coursework option. There is training available online for teachers who are new to the coursework option. There is also the Coursework Handbook available from CIE which includes examples of coursework which are annotated to show how they should be marked. Training courses at present have unfortunately been extremely curtailed, owing to the COVID-19 Pandemic.

General comments

The range of Topics undertaken possessed a little less variety compared with the June session in the past years. Coursework submissions on Human Geography topics outnumbered those on Physical Geography and this may reflect that it was easier during the Pandemic for some centres to collect data online, for instance using questionnaires. Human Geography topics tended to be based on tourism or the characteristics of different zones in urban areas (for example land-use and traffic flows) and service provision, whilst Physical Geography ones were predominantly on rivers, with some on coasts and local weather or microclimates. Once again there was no evidence that candidates did better on one or the other or when they used past data (due to the COVID-19 Pandemic), instead of being able to go out in the field themselves.

Coursework submissions were generally well focused and most, but not all, achieved a good balance between the five sections of their studies. Background information was usually appropriate in content, but some tended to be disproportionately long compared to the analysis and conclusion.

The Moderators also praised candidates whom despite the onset of COVID-19 Pandemic proceeded with their coursework apparently undaunted. One wrote that 'Nearly all candidates clearly identified the impacts of the COVID-19 Pandemic and described how their fieldwork strategies were adapted, either in their data collection write-up and/or in their evaluations'. Using the data from previous year's research proved no real obstacle to most candidates.

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 well overlength (over 2500 words); these tended to be a little verbose and/or lost sight of the original aims of their investigation. It could help if candidates declared their word count in future submissions; this should help them to analyse their findings in a more succinct fashion. Please note that where text is placed in tables, this also counts towards the word limit.

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. However, where candidates collected their own data in small groups this did not tend to work so well. For safety reasons CIE would not endorse candidates being allowed to collect data on their own, 'in the field'. Should a candidate need to add extra data for their own study to that 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.

Comments overall

Centres must again be commended on the organisation of their fieldwork data collection programmes. Although most of the teaching for many centres took place online which only goes part of the way to substituting for face-to-face guidance in the classroom, there was very limited evidence to indicate that candidates had little idea of the purpose of their data collection.

On the whole candidates were able to demonstrate sound background knowledge regarding their chosen topic. Geographical theory which was described in the introduction however, often lacked application with any degree of detail in the Analysis and Conclusion.

The *Organisation and Presentation*, remains the strongest part of the study for many candidates with the best studies deploying a range of techniques, both simple and complex, effectively. However, some scanned graphs and maps were not always legible. The data collection exercise was also well described by the majority of 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 higher Level 3 marks, 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, as well as clearly enjoying the experience of working outside of the classroom.

One area of concern for Moderators was that in some centres candidates were given too much guidance regarding the content of their studies and that it was difficult to tell some studies apart particularly when they used the same computer-generated graphs. While the data collection must be a collaborative exercise, individuality is key to achieving the highest marks. This can be achieved by candidates;

* researching their own background information
* attempting at least one hypothesis which is not attempted by other candidates
* representing their data by graphs and maps and field sketches which are clearly individual
* using their own photographs

These are in addition to a candidate's own analysis, concluding comments and evaluation.

There is still a tendency for some candidates to attempt too many hypotheses. This often, sacrificed detail in the analysis and explanation in which candidates could demonstrate their level of understanding. It must be reiterated here that centre's must ensure that enough numerical data is collected on any one parameter in order that their candidates have enough data to identify trends and anomalies, perform statistical analysis if desired, and account for their findings with reasoned explanation.

Moderators praised the hard work of markers and their accuracy in applying the *Generic mark scheme for Coursework assessment*. In nearly all centres it was applied consistently with the order of candidates remaining unchanged. This made applying adjustments relatively easy. While many were negatively

adjusted, this was by no means across all of the mark distribution and for many centres there was no change. There seemed to be a pattern of negative adjustments above 48 marks and positive ones for those below 35. The *Analysis* and the *Conclusion* were often over-marked, while *Organizsation and Presentation* were under-marked. Those very few centres which had a large adjustment applied, were generally relatively new to the moderation process; the reasons would be detailed in the document *Moderator's Comments on school-Based Assessment of Coursework* which each centre receives.

Comments on specific assessment criteria

Since each centre will receive a separate coursework report on their own submission, 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* tended to be assessed appropriately. However, markers are reminded that this criterion should be assessed across the whole study and not just in the introduction where much of a candidate's knowledge is often stated. However, new knowledge may be introduced in the Analysis to explain trends or anomalies. Similarly, the level of understanding will often manifest itself in the Analysis and Conclusion where one can judge how well the theory introduced at the beginning has been applied. In the Presentation, the understanding of how appropriate certain types of graph might be, can contribute to the overall assessment of understanding, as can the appropriateness of the use of and interpretation of the results emanating from a statistical technique. 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.

It is still the case that many introductions are too long. Background information whilst often appropriate in content was disproportionally long compared with other parts of the study. Clear aims were usually stated and those centres which encouraged their candidates to use two core hypotheses and a third chosen by the candidate him/herself resulted in a more focused study with greater evidence of individual work. The use of four or five hypotheses or a generic guiding question was usually associated with a superficial analysis.

The better studies tended to introduce the aims and then their hypotheses at the beginning. The latter were well justified, often consisting 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 cultural and historical detail only being included where it would have a direct bearing on the study's results. Once again, the most common theories which were utilised were those of Bradshaw, Butler and Burgess and Hoyt; in the best studies these formed a focal point throughout.

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 idea of a predicted outcome. For some new centres the hypotheses were far too general, thus the studies turned out to be far less focused on specific aspects of the topic which were to be tested. Rarely, it was obvious that the candidate did not understand the nature and purpose of a hypothesis. The hypotheses were often prefaced by a block of theory often scanned in from textbooks or from internet sources but with little indication to explain why it had been included. A glossary of geographical terms should be discouraged, since this takes up wordage which could be used to good effect elsewhere.

It is good practice to include a map of the study area to locate the places where data was collected. In addition, those who undertook river studies often located their river as part of the overall drainage basin in the region. However, it is important that these maps, whatever the source, have a scale and orientation. Where they are scanned into a space on a particular page, it is important that the detail on the map is still legible. Furthermore, it is expected that these maps are utilized by the candidate, for example using annotations to indicate the relevance of various locations to the study. It was reported by one Moderator that there was still an overreliance on Google Maps (both maps and satellite images) with little or no customisation to the study location. A few candidates still include three or four maps at different scales to show the study area at a world, continental, regional scale etc. This is not necessary and generally adds little to the quality of the study. Some Moderators praised the inclusion of hand-drawn maps which were accurately reproduced and fit for purpose.

On the whole, markers assessed the *Organisation and collection of data* accurately. The Moderators were impressed by candidates who were able to describe their data collection techniques very accurately despite having not taken part in the fieldwork data collection due to COVID-19 restrictions. This was particularly the case when using a past cohort's data for river studies.

It is now well established that individual candidates should not go out on their own to collect data. This seems to have been reinforced by the COVID-19 Pandemic. 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. However, many candidates did not justify the data collection sites and the methods of sampling. Indeed, it appears that the different types of sampling are sometimes misunderstood

The Moderators also noted that the COVID-19 Pandemic seemed to cause significant disruption to data collection routines for some centres, but not others. Some 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. When this was the case most centres managed to collect data from over the recommended 50 questionnaires. However, the sampling rational often went undescribed, whilst others made it clear that it was from relatives and friends even if they lived in a different part of the country. For tourism related topics the before and during the COVID 19 Pandemic comparison of data, promised much potential, one which was taken by many candidates but not all, with some failing to use the past data which had been made available to them. Online interviews were also held by some candidates, again with varying degrees of success; the best results being obtained where the extraction of information was added to data from a variety of other sources, both primary and secondary.

Having recognised the problems that some centres might have in collecting data, CIE advised that numerical data could be utilised from secondary sources such as weather stations or censuses. One or two centres who were new to the coursework module set a topic/topics in an essay format that entailed collecting and synthesising information culled from the internet or textbooks. These tended to take only a cursory note of the Route to Geographical Enquiry and thus gained little credit for Organisation and Collection of data.

The amount of data collected by some centres is an issue for some. Centres that allocated more than half a day to data collection almost inevitably achieved much better results than those who attempted to collect data in one or two hours. There are also centres who visit no more than 4 sites to collect data on a variety of river parameters (largely those found in the Bradshaw model); this does not tend to yield enough data on any one factor, for example river velocity, even if the experiment is repeated to increase data reliability. It much be emphasised that participant safety is of paramount importance, however, where four sites are identified, it might be possible to collect data at multiple places at each site, each for instance 150 metres apart.

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

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

Moderators reported that assessment of *Organisation and Presentation* exhibited the greatest variation in marks given by centres compared with the moderated assessment. This is due to similar reasons as in November 2020 and are thus, worth repeating. 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

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

Organisation and Presentation scored the most highly of the five criteria and Moderators reported how impressed they were with the skills demonstrated by some candidates. Compound bar graphs, located pie charts, field sketches, radar graphs and scatter-graphs with a line of best fit were just some of the complex methods used by candidates effectively. However, there is still a reliance on basic, bar, line and pie charts by many. There were few worked examples of Spearman's Rank Correlation which could have counted as a complex technique. Correlation coefficients were, in many cases, obtained just by pressing a computer key.

Some candidates need to understand more about how they can make their graphs more effective to convey the data they wish to display. Once again, there seemed to be many incomplete bar and line graphs, which having been drawn accurately, lacked axis labelling, particularly on the Y axis. Such labelling should include the name of the parameter along with the units. On some occasions, titles were also missing. Since the majority of graphs are produced by using computer programmes, it is wise that having inputted the data, candidates inspect the results carefully and make any necessary amendments. In addition, beach profiles and river cross profiles were often drawn very accurately, but each one had a different scale which made comparisons between them very difficult.

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

Many candidates from some centres used the same computer-generated graphs in their presentation. If the same data is inputted, this is an inevitable result, so this further demonstrates the need for at least one original hypothesis for each candidate. Some candidates were able to manipulate the data to produce graphs which were different, for instance by using averages or calculating the mode or standard deviation of certain data sets.

The *Analysis* tended to be overmarked at the top end of the mark distribution. Markers should clearly identify reasoned explanations in order to award high Level 3 marks. Whilst analyses have continued to improve for more established centres, for new centres in particular, it is the weakest criterion for many candidates. Although candidates often describe their results well, using data from the graphs and relate the analysis to their hypotheses, the explanations for their findings were usually brief and/or speculative. It was however reported, that the better responses used field observations, creditable secondary data and/or geographical theory to substantiate their findings. Some identified anomalies but the explanations were often tenuous and some blamed unreliable data collection techniques. Again, it is worth stating that phrases such as 'The reason might be/could be/may have been', should be avoided when attempting an explanation. It was also noted that the few centres which used statistical techniques, did not exploit their results to their full potential. Correlation coefficients, for instance, often went untested for significance and the coefficient value itself was poorly interpreted. Where many hypotheses were tested, it often meant that there were insufficient values on any one set of data and this led to a lack of depth in interpretation. Traffic counts for instance could have been taken more often during any day or on different days of the week, giving scope for comparisons to be made as well as the calculation of averages. Furthermore, some candidates described data which although part of a group data collection, was not relevant to their chosen hypotheses. This was more likely to happen where only the data from a few questions was needed from a shared group questionnaire.

The *Conclusion and Evaluation* was marked accurately apart from the highest scoring studies. Here too much credit was given for accounts which lacked key data. By and large candidates focused on their hypotheses either confirming or rejecting them and summarised their findings quite clearly. However, explanations were often superficial and not clearly related to the evidence collected. The latter should be either examples of numerical data or stated characteristics shown on graphs, maps and tables which are clearly referenced; for example 'On Fig. 1 it can be seen that…..'. Better responses did refer back to the theory outlined in their introduction, for instance, stating at which stage of the Butler Model, a particular tourist resort had reached.

The evaluations were often better than the conclusions and candidates who were not able to undertake data collection but used past data, should be commended for their insight, considering that they were not actually present. Many centres prepared their candidates well for the evaluation and this led to valid discussions about data collection with realistic improvements. Discussion on the sampling procedures, however, were largely absent. Furthermore, comments such as 'We did not have long enough to collect data' were common. Weaker responses tended to give generic improvements such as 'We needed more time' or 'Collect more data'.

Administration

Most centres got their coursework sample submissions to CIE on time, before the 30th April deadline, with the appropriate paperwork completed accurately. The latter consisted of the candidate Summary Assessment Form together with the MS1 or the Internally Assessed Marks Report. Please make sure that an Individual candidate Record Card is attached to the front of each script and not sent in the overall package in one pile. Candidates were listed in candidate order on the Coursework Assessment Summary Form, which also helped moderation.

Most coursework samples represented the mark distribution well, and, included both the highest and lowest scoring candidates. Please continue to double check the paperwork to make sure there are no mathematical errors either in the addition of marks on the Coursework Assessment Summary Form or in the transcription of marks to the MS1's. Very few errors were detected this time round.

Moderators reported how useful it was to have comments on each of the scripts to justify the marks awarded. These generally used the wording from the Generic Mark Scheme for Coursework Assessment. These facilitated the smooth running of the moderation process and on the very odd occasion, highlighted when a marker had misinterpreted the mark scheme. If your centre has not done so, it would be very much appreciated if markers make these comments (in pencil) on the scripts for your next submission.

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

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

GEOGRAPHY

Paper 0460/41
Alternative to Coursework

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. Weaker responses scored 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** more successfully than **Question 1**.

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

1(d) where some candidates focused on measuring the shingle rather than collecting it.

Question 1f(ii) required candidates to suggest possible weaknesses in the fieldwork task. This type of question, or a similar question suggesting improvements, 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.

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

Comments on specific questions

Question 1

(a) Most candidates correctly identified the headland from the photograph. A few candidates answered natural arch.

(b) Many candidates identified the correct statements about longshore drift. The question differentiated well as all six statements were linked to the process and so candidates had to know which ones were correct. Statements one and six were popular distractors chosen.

(c) Most candidates were able to explain the value of having a cell (mobile) phone and checking the weather forecast. The need to check tide times was not so well answered. Some weaker candidates missed the required emphasis on safety precautions. Answers like 'to keep in contact with friends' and 'to know if the beach was accessible' were not accepted.

(d) This question about fieldwork methodology was difficult for many candidates and 4 per cent of candidates did not attempt it. Most answers referred only to picking up ten pieces of shingle at random, although some did refer to picking up pieces at regular distances. Some candidates suggested using a quadrat but few described how to use it effectively. Weaker responses wrongly wrote about how the shingle would be measured and results recorded.

(e) (i) The quality of answers varied. Stronger responses used the photograph well to describe the method. Other candidates found it difficult to describe the idea of putting shingle between the 'teeth' of the callipers, and some did not refer to measuring the shingle by using the scale.

(ii) Most candidates plotted the result accurately. Some candidates carelessly plotted the length at 6.2 or 6.6 cm.

(iii) Most best-fit lines were drawn within acceptable parameters. This line helped to show the negative correlation between the two variables.

(iv) The question discriminated well. Most candidates made the correct conclusion that hypothesis one was correct and many used appropriate paired data to show the decrease. Few candidates described the negative relationship. This description was needed for full marks as the question required the use of evidence rather than just data to support the conclusion.

(f) (i) Nearly all candidates made the correct calculations of the index scores. Weaker responses made careless errors such as '2 × 2 = 6' and '4 × 0 = 4'.

(ii) Stronger responses compared the subjective roundness index scores with the measured long axis lengths. Weaker candidates suggested the possibility of human error which was not accepted as this would apply to both methods.

(iii) 10 per cent of candidates did not attempt the question. The remainder generally drew the bar accurately. A few candidates misread the scale and drew it to 42.

(iv) The second hypothesis question also discriminated well. Many candidates correctly stated that hypothesis two was wrong. Stronger responses also recognised that there was no pattern or correlation shown and gave appropriate supporting data.

(g) The quality of answers varied. Whilst many candidates gave valid reasons why groynes were built on a beach, some weaker responses did not understand their purpose and wrote about reducing wave energy or preventing erosion.

(h) The question discriminated well. Stronger responses candidates described a detailed method to measure wave frequency, whereas weaker responses simply wrote about making a number of measurements to work out an average.

Question 2

(a) Over half the candidates correctly identified the rural-urban fringe. The most common chosen distractor was the transition zone.

(b)(i) Most candidates recognised the shape of the village was linear. A few better responses also tried to describe the shape in more detail such as 'Y-shaped'.

(ii) The question was difficult for many candidates. Whilst some candidates described the expansion in general terms such as 'away from the road' or 'around the original village', only the better candidates used directions to develop their ideas.

(iii) The question was answered poorly by most candidates. Many answers were either vague or irrelevant. Vague answers referred to increased population or the settlement being near to a main road but did not suggest why these were important. Irrelevant answers showed no understanding that the settlement was originally a small village on the edge of a city in an MEDC. Some weaker responses suggested that a squatter settlement had grown there because of the cheap land or the woodland could be used to build housing. Only a small number of better candidates suggested why people might be moving to live in the expanded settlement.

(c)(i) Many candidates showed understanding of the term 'secondary data'. Candidates often referred to the internet or another source of data.

(ii) Most candidates correctly plotted the population number, but again there was a 6 per cent omission rate for this data plotting question.

(d)(i) Most candidates suggested a suitable time for a questionnaire survey.

(ii) Candidates realised that the target population was the working age group and the survey must be conducted when they were not at work.

(iii) Nearly all candidates correctly put the suggestions under the correct heading.

(e)(i) Most candidates correctly suggested that people should be asked if they lived in the town before using the questionnaire. Weaker responses merely suggested 'ask them' which was too vague for credit.

(ii) Most candidates identified the correct sampling method. The most commonly chosen distractors were 'simple' and 'specific'.

(f)(i) Most candidates completed the pie graph correctly, although, as usual, some reversed the order of the number of years. Pie graphs need to be completed in the order given in the key. Some candidates carelessly shaded the 40 and over segment using diagonal lines when the key shows horizontal line shading. The omission rate was 5 per cent.

(ii) Most candidates identified that hypothesis one was incorrect. Many supported their conclusion with appropriate statistics. Stronger responses also stated the correct conclusion that most people had lived in the settlement for more than 20 years.

(iii) There was a 4 per cent omission rate but most candidates correctly drew the bar in the histogram.

(iv) As in the previous hypothesis question most candidates gave the correct conclusion. They supported this with appropriate statistics to show that most people travelled more than 20 km to work.

(g) There were few errors in matching the statements to the correct reasons. A few candidates identified the statements by numbering them in Fig. 2.6 and in their answer, which was accepted. However, if candidates only gave a number in their answer but did not identify the number in Fig. 2.6 their answers were only credited to two marks maximum. Weaker responses incorrectly matched the rail links statement with motorway access, and open areas for walking with transport routes.

(h) The final question discriminated well. Candidates focused more on the disadvantages for local people of increased traffic, noise, litter, spoiled scenery rather than the advantages of jobs e.g. in building, and more customers for local businesses. Some candidates only focused on the natural environment with suggestions about loss of woodland, and effects on habitats and wildlife. Weaker responses were generally vague in their suggestions, e.g. 'more noise', 'more jobs' which did not gain credit. They needed to be more precise about how these affected the area.

GEOGRAPHY

Paper 0460/42
Alternative to Coursework

Key messages

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

- When answering Hypotheses questions that ask whether you agree or not, always give your opinion at the start of your answer before any supporting evidence. This will usually be *Yes, No* or *Partially/To some extent*. Do not just copy out the hypothesis if you agree with it. It is important to make a decision and state it as well as provide the data or evidence for your choice. Be clear in your decision – expressions such as '*might be true', 'could be false*', '*true and false'* are too vague.
- If you are provided with a decision about a hypothesis – not the case on the paper this session but could be in future – do not then disagree with it and try to justify your view. You need to support the decision made with evidence. Note that if the question requires data as evidence you must give numbers and statistics; descriptive statements will not count for credit. If evidence is asked for, this can include numbers and descriptive statements.
- When giving figures in an answer always give the units if they are not stated for you e.g.
  Question 1(c)(iii) '*Rainfall is 10 mm at the university which is 2 mm higher than 8 mm at the school'*. It is also important that your numbers are clear e.g. a 1 can look like a 2; 4 can look like a 9; a 7 can look like a 1, sometimes a 2 looks like a 5. Candidates' writing must be legible; credit cannot be given if the answer cannot be read.
- When shading or completing graphs, use the same style as that provided in the question and make sure a sharp pencil gives a good dark image. Check you understand the scales used and the importance of any plots already provided. If adding plots to complete a graph, these should be in the same style as the plots already on the graph e.g. crosses should be crosses not dots – ref. **Question 2(e)(i)**.
- When completing pie charts or divided bar graphs, complete these in the order of the data given and in the order of the key which conventionally will be clockwise on a pie graph and from left to right on a divided bar graph. Use the protractor and calculator to work out the correct degrees and plot the line carefully; do not rely on judging the plot by eye. Make sure your shading matches the key e.g. if the shading is horizontal do not draw shading that slopes to the right or left. These points were important in **Question 2(d)(i)**.
- If you are referred to data from a table or graph use the exact figures from the table rather than make judgements from the graph. Try to avoid words like '*almost' 'nearly'* or '*approximately'* and choose a precise number e.g. in **Question 2(a)(ii)**.
- When you think you have finished, go back and check that all graphs have been completed; too many candidates lose easy marks by missing out graphs e.g. **Question 1(b)(i)**, **Question 1(b)(iii)**, **Question 2(d)(i)**, **Question 2(e)(i)** and **Question 2(f)(i)**.
- Read questions carefully and identify the command word e.g. *Describe..., Explain…* A question that asks '*Why?*' requires a reason to be given not a description.
- Check you are using the resources that a question refers you to e.g. **Question 1(b)(ii)** Fig. 1.2 and Table 1.1.
- Take into account the marks awarded. Examiners do not expect you to be writing outside the lines provided so do not write a paragraph when only two answer lines are given – this wastes time.
- Be careful with the use of terms such as '*majority'* when the correct term would be '*highest'* or '*most'*. The 'majority' must be more than 50 per cent of the statistics being described and is not a term that will be accepted if the data involved are less than 50 per cent e.g. **Question 2(d)(iii)**.
- It is important that, when you write the remainder of an answer elsewhere, you signal it by writing something like –'*continued on page 14'* to ensure it is seen. It needs also to be noted that quite often a number of candidates give the wrong sub-section number to their extra work which made it more difficult to match to their earlier answer and credit correctly. If you need to add extra work make sure you use the extra pages provided; do not request an additional booklet which then complicates the marking process.

- You are expected to have a calculator, protractor and a ruler in this exam; it was apparent in several cases that these did not appear to be used e.g. drawing bar graphs or working out degrees for the pie graph.

SECTION 3

General comments

Most candidates found this examination enabled them to demonstrate what they knew, understood and could do. It appeared to be a positive experience for many candidates with most questions being attempted by candidates and most achieving marks on most sections. The overall range of marks was from 2 – 59 (0 – 57 in 2019) with weaker candidates scoring on the practical questions such as drawing graphs or completing tables, making calculations and making choices from tables. Stronger responses scored well on the more challenging sections requiring judgement and decision-making on hypothesis choices with evidence and other written answers.

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

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

Although this is an *Alternative to Coursework* examination, candidates will still be expected to show that they know about fieldwork equipment, how it is used and fieldwork techniques.

Any fieldwork experience is worth doing even if there is only limited opportunity within the centre. Familiarity with maps, tables, sampling methods, measuring instruments and the various graphs and other refining techniques listed in the syllabus are also important for success in this examination.

Question 1 was of equal accessibility to **Question 2**. This question focused on measuring the weather with an emphasis on measuring and recording rainfall at a school and comparing results with a local university which used an electronic weather station. It also involved knowledge of a rain gauge, a wind vane, cloud types and units of measurements and how a sunshine recorder would be used. Data on rainfall and wind direction was provided as was a photograph of a sunshine recorder for reference. Candidates were required to complete practical tasks such as drawing a labelled rain gauge, completing bar graphs, adding plots to a dispersion diagram and matching cloud types to descriptions. Candidates needed to make judgements about two hypotheses using data as well as applying knowledge and understanding to agree or disagree with them.

Question 2 was of similar accessibility to **Question 1**. This question was about candidates at an international school studying tourism in Singapore. Candidates needed to answer questions about the effect of global events on tourism and the distribution of tourist attractions alongside the impacts of tourism on the country. They needed to know about different sampling techniques to carry out a survey on visitors and how to decide on appropriate questions to test different hypotheses. They were also asked to consider the reasons for visiting Singapore and whether there was a link between the distance travelled to get there and the number of days visitors stayed for. A graph of visitor numbers, a map of tourist attractions and information on the reasons for visiting plus the sources of visitors were provided in the Insert. A copy of the survey sheet used was provided with three survey sheets containing errors in the Insert. Candidates were required to complete practical tasks such as a pie graph, a scatter graph and a flow chart on a map in the answer booklet. Candidates needed to make judgements from evidence with regard to two hypotheses; they were also required to judge three errors on three different survey sheets.

Comments on specific questions

Question 1

(a) (i) This was very well answered with most candidates choosing *'away from trees…'* and *'remote from people…'*. The few incorrect responses included the *'on a hillside…'* choice.

(ii) Very few candidates gained 3 or 4 marks for their labelled drawing of a rain gauge which is a standard weather instrument that candidates should know and understand well. Only a few included the funnel (often mislabelled as a filter), a measuring cylinder and an outer container which are the three basic parts of the apparatus; in many cases there was no outer container. Several labelled site factors e.g. *'30 cm off the ground'*, which were not aspects of the instrument itself. A few drew some reasonable alternative rain gauge types including pluviometers. Others drew wind vanes, anemometers or thermometers; a concerning number did not attempt this at all.

(iii) Almost all candidates knew that NESW meant North, East, South, West or that they were compass or cardinal directions for 1 mark, Some stated '*bearings*' which the directions are not. Many responses, though not the majority, made it clear that the pointer on a wind vane pointed to where the wind was coming <u>from</u> – not <u>to</u> or vaguely *'where the wind was blowing'*. The wind vane is located on the roof to stop obstructions such as buildings or trees obscuring or interfering with the wind thereby giving an inaccurate reading. Some vague answers referred to getting *'accurate wind'* or getting *'sufficient wind'* and a few thought it was put there to avoid being tampered with by people or animals.

(b) (i) There was some excellent plotting of 2 mm and 5 mm bars produced by almost all candidates. A few drew the 2 mm bar at the right height but rather narrow as it only covered two squares instead of three. A small number of candidates did not attempt adding the missing bars thereby not gaining two straightforward marks.

(ii) The majority of candidates did judge correctly that the hypothesis was correct. Although correctly agreeing that most rainfall came from the west, they did not always choose a related figure from other directions to provide paired data for a mark e.g. stating that 24 mm from the west was the highest would not gain a mark without reference to a lower total from another direction e.g. 2 mm from the north east. Some recognised the 4 days that had the highest rainfall were from the west and compared this with less rainfall data on other days from other directions which was acceptable. Some referred to no rainfall from the east but the wind never blew from that direction. There were a few vague answers with no data e.g. rainfall was more from the west than other directions – which, without data, is just repeating the hypothesis. This needed comparative data from the resources to gain credit.

(c) (i) Most candidates gained both marks here by recognising primary data as being found from original sources or first-hand by the researcher/candidates themselves and secondary data being information or records that were already available or second-hand having been found by other people. Some inappropriate answers compared old/new data or reliable/less reliable data as primary/secondary. A few thought primary involved no instruments but secondary was obtained from instruments such as the weather recording instruments.

(ii) The most frequent advantages of using electronic recording instruments most often stated by candidates were that they were more accurate/reliable and faster than traditional instruments although this was not a comparative question. Other acceptable responses included that they were less prone to error, that they could store data and that the candidates did not need to be with them at certain times as they provided data 24/7. The fact that they are *'automatic'* on its own was not accepted as an advantage nor was the fact that candidates could do less work or that they would be safer in the event of a thunderstorm/lightning outside.

(iii) While there were some good plots in the correct space on the 4 mm/1 day location, quite a few put the cross to one side of the gap thereby losing a mark. The 3.2 average line was generally well done but a few drew several crosses along the 3.2 line and others placed it at 3.15 or at 3.4 demonstrating a misunderstanding of the vertical scale. Quite a few did not attempt this question.

(iv) It is important that candidates give a clear decision about hypothesis judgements; in this particular question, instead of correctly disagreeing with the hypothesis, quite a few candidates just rewrote the hypothesis by stating that '*Rainfall is higher at the university than the school'*. This is not good practice and is usually not credited. A decision must be given for example either as '*I disagree with the Hypothesis…' or 'No – the Hypothesis is wrong…' or 'My conclusion is that…'* then followed by evidence to support the decision. Some pleasing data evidence was provided such as the average rainfall at the university was 3.2 mm which was higher than the 2.1 mm at the school and that the highest rainfall of 10 mm was at the university whereas at the school it was only 8 mm. A few candidates read the scale wrongly from the graph especially the school average which was 2.1 mm but was read as 2.2 mm or 2.05 mm by some.

(d)(i) While the vast majority correctly ticked *Oktas* as the unit of measurement for cloud cover, some candidates incorrectly ticked degrees and millibars.

(ii) Many responses correctly identified the descriptions of different cloud types. Quite a few confused *cumulus* and *stratus* while getting *cirrus* correct. A minority had all three types confused.

(e) This was the least successful question on the whole paper. Most responses showed very little knowledge of how a sunshine recorder was used despite it being listed alongside other weather instruments that candidates should know and understand about in the syllabus. It was also important for candidates to note that the question asked '*…how a sunshine recorder is used'* not how it works as many candidates did the latter without any reference as to what candidates would do to get a record of the data.

Most candidates were aware that it should be placed in an open space/outside and that the sunlight should not be obstructed by shade. Many seemed to think that the sunlight made marks or burnt the metal scale in the instrument; no mention was often made of a card or sheet being placed in the instrument to be burnt or scorched when the sun was out. A few stronger responses noted this and noted that sunrays burnt a line when the sun shone and, at the end of the day/sunset, the card should be taken out and the length of the burnt line measured to work out the hours of sunlight. They also mentioned replacing the card for the next day.

Inappropriate ideas included that it recorded solar intensity, that it was read every hour and that it followed the sun. Some suggested that the sun melted the metal and the amount of melting could be read on a scale or that the recorder absorbed the sun's rays and increased in temperature by heating up in a similar way to a thermometer; this could be measured.

Question 2

(a)(i) Candidates needed to read the graph carefully and check the vertical scale to arrive at the correct answer of 17 million which most did. A few misread the scale and ended up with answers just over 16 – a few gave answers to one decimal place i.e. 16.9 or 17.1.

(ii) Almost all candidates recognised that both the SARS outbreak and the global financial crisis caused tourist numbers to fall for one mark. They did not, however, show enough preciseness in providing accurate data to show how much the numbers had reduced e.g. instead of making a definite judgement that in the SARS outbreak numbers fell from 7.7 million to 6.2 million they would say '*approximately' or 'nearly' or 'just over'* which were too vague for credit. A reasonable range was allowed in the mark scheme for exact figures which benefited those that had made a clear decision. Some did give the figure that the numbers reduced to but not the figure that it reduced from. Very few candidates gained more than one mark here.

(iii) While a few candidates listed advantages instead of disadvantages and others thought that tourists would take up jobs from local people, or that the residents would starve, the vast majority of candidates gave acceptable answers such as issues related to different cultures, loss of land/housing to accommodate tourist facilities, different types of pollution (air/noise/water) and crowding, traffic congestion as well as rising prices. Vague answers included '*pollution'* and '*resource loss;* a few wrote about environmental impacts. Most scored two marks here.

(b)(i) While there might be an argument that the Raffles Hotel could now be described as a '*cultural'* icon and part of Singapore's cultural heritage, of the four choices provided, the most obvious description, and the one almost all candidates correctly chose, was '*man-made'*.

(ii) Most responses applied sound geographical terminology and description to the distribution of tourist attractions. Most recognised that they were clustered, linear or close to each other; that most were in the south with the Singapore zoo being an exception in the north and a few applied the scale e.g. '*most within 5 km of each other*'. A few described the location in relation to the other attractions e.g. '*next to the Raffles Hotel*' which was not a good geographical description.

(c)(i) Almost all candidates stated that the reason for asking people if they were from Singapore was because their questionnaire was about visitors so any local residents would be of no use to the investigation. A few did observe that it would be a saving of time for the candidates and residents by asking this question; not so many added that, if they did ask the residents, the results would be inaccurate or irrelevant. A small number gave incorrect answers such as stating that they would then know how many tourists there were and why they were there which did not answer the question asked.

(ii) If candidates had studied sampling, the issue here was that the method used was systematic but the candidate description was random. Some candidates answered this in the reverse order of the question asked e.g. described systematic sampling as one that involved interviewing every 5th person and that what had been described by the candidate was random; this was acceptable although it seemed a little illogical. A few referred to stratified sampling and other descriptions; others criticised the brevity of the method statement which they felt was rude and rewrote it in more considerate language. It is important for centres to make sure candidates know and understand the three sampling types listed in the syllabus – systematic, random and stratified.

(iii) Almost all candidates chose the correct number of the questions as 2, 5, 6, 3 and 4 to gain both marks. A few did mix them up and a small number tried to write the actual questions in the space provided! Most errors were in the last row where two numbers were required. The question clearly stated in emboldened words '…write the question numbers in the table below'. Overall though this question was very well done.

(d)(i) Most candidates did this well especially the shading aspect of the pie graph. It is worth noting that candidates should have a protractor and calculator in the exam room (see the front cover of the paper) and should therefore be able to work out that the 89 per cent plot required a line approximately 40 degrees left of the vertical. A large number seemed to have drawn their line by eye marking it too close to the 90 per cent mark provided. Taking time with the calculation is important here so that the line is plotted as accurately as possible. A few put their plot exactly on the 90 per cent mark and others placed it in the wrong key order so their line was at 95 per cent instead of 89 per cent. Quite a few did not attempt what was a relatively straightforward pie graph completion.

(ii) The vast majority agreed that shopping was the main reason why people visited Singapore although some just wrote out the hypothesis word-for-word without indicating their decision. A second mark was available for stating that 35 per cent was the highest single reason – many responses just stated that the hypothesis was correct because 35 per cent visited for shopping or gave no data and just stated that shopping was the highest reason. Data must always be provided as evidence to support a hypothesis decision. A small number referred to 35 per cent as '*the majority*' which it is not.

(e)(i) These plots were relatively difficult given the plethora of other plots provided on the graph so it was important for candidates to carefully assess both axes and the scales before plotting. Most managed to plot the 4 000 km/7 days plot very well and had obviously checked the vertical scale to place the 7 between the stated 6– and 8-day labels. The 1100 km/8 day plot was less well done – this appeared to be due to many candidates reading 1100 km as 11000 km and placing the plot too far to the right on the 8-day line. Those that took care did plot the 1100 km plot accurately just to the right of the 1000 km line which was halfway between the 0 and 2000 km labels. Quite a few did not attempt this question; maybe they thought the graph was complete.

(ii) While many candidates correctly disagreed with the hypothesis for one mark, they seemed to assume that, if there was not a positive relationship, there must be a negative relationship. This is not true as it is quite acceptable to have no relationship/correlation as was the case here and better candidates did recognise this. Another issue that arose was how 'loose' candidates were in using the graph data e.g. stating that those who '*travelled 16 000 km visited for only 8 days compared to others who travelled for 3000 km staying for 15 days*' but these distances are incorrect – they

should be 15 400 km and 3100 km. It is important to be precise when quoting data from graphs or tables. Few candidates gained more than one mark here.

(f) (i) Over a quarter of candidates did not attempt the flow arrow plots. The plotting involved drawing a pencil-thickness line from South Africa towards Singapore and a thicker arrow from Australia to Singapore using the key. Some did these very well scoring two marks; others drew the arrowheads in reverse or pointing in any direction, a few did not start the arrows in or even close to South Africa/Australia. Some Australia arrows were too narrow or wide compared to the key; a few just wrote the numbers in the country.

(ii) All candidates are expected to know the names and locations of the continents as required in the syllabus. Few responses correctly stated Asia as the continent that most visitors came from. The most common errors were Europe – which had the most arrows but not visitors – Australia, Japan, China and Africa. A significant minority left the answer blank.

(g) Candidates responded well to this rather different final question which, instead of requiring extended writing as usual, asked them to make judgements about the different errors made on each of three survey sheets provided in the Insert; a simulation exercise of the type of decisions they would have to make from any questionnaire survey used in fieldwork. Almost all correctly recognised that one of the answers/Question 3 on Fig. 2.8 had not been filled in. Again, the vast majority observed that on Fig. 2.9 the visitor had provide three ticked reasons for coming to Singapore instead of the requested **main** reason. There were less correct answers to the error in Fig. 2.10 though. While the majority did spot that for Question 3 the answer given was wrong in that the USA was a country and not a city or airport, a few stated that there was no error in the response or criticised the age-groups or reason ticked. Clearly, they had not noticed the USA being stated as a city or airport. A small number stated that a continent (the USA) had been wrongly stated as a city or airport for which there was no credit.

GEOGRAPHY

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Paper 0460/43

Alternative to Coursework

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Key messages

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 candidates agree or not, they should always give their opinion first before any supporting evidence. This will usually be Yes, No, or Partially/To some extent. If candidates are asked to support their decision with data, then statistics must be used from the resources referred to in the question. Data is quantitative; evidence can be qualitative or quantitative. If candidates make an incorrect conclusion to the hypothesis, they will gain no credit for the answer.
- When giving figures in an answer always give the units if they are not stated.
- 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.
- Candidates should check they are using the resources that a question refers them to, e.g. *Support your decision with evidence from Tables 2.4 and 2.5.*
- Attempt all completion tasks on graphs, tables, or diagrams – not all the answers are on lines and in writing. **Many candidates are missing out on relatively easy marks by not attempting these questions.**
- Candidates should take into account the marks awarded for each question and the space they are given to write each answer, e.g. if there is only a space of two lines to write an answer and the question is worth two marks, a full paragraph is not needed. Taking note of this will help give candidates more time on longer answers and overall save time.
- If candidates have to write more than the lines allowed, indicate this with a phrase such as (*continued on additional page*). When candidates use the additional pages, it is important to clearly label work with the relevant question number to ensure that candidates receive full credit for their work.
- 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 candidates think they have finished, they should check that they have not missed a question out. Some questions are hard to find if they are on pages with a lot of graphs or maps. **Candidates should make sure they have answered the questions on every page. This applies specially to questions where they are asked to complete tables, diagrams, graphs or maps.**

General comments

Most candidates found this examination enabled them to demonstrate what they knew, understood and could do. The overall range of marks went from 0 to 59 out of 60 – a similar range to previous years – with practical questions, such as drawing and interpreting graphs and tables, scoring among the lowest marks. The more challenging sections requiring explanation and judgement especially regarding hypotheses included some of the best responses. Most candidates answered **Questions 1** and **2** with equal facility.

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 concisely and perhaps give more thought to their answers. It is important that candidates understand and focus on command words, as well as use of appropriate fieldwork techniques and equipment. Typically, where candidates did not score well it was down to them not carefully reading the

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question. For example **Question 2(c)(iii)** where some candidates suggested how land use on the farms is affected by physical geography rather than why it is affected. As in some previous papers **Question 2(e)** required candidates to suggest suitable methodologies to extend their fieldwork. However, some responses stated a series of generic improvements or methodology which may apply to all fieldwork rather than the example in the question. Such suggestions tend to be vague and did not gain credit.

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

Comments on specific questions

Question 1

(a) (i)   This question tested candidates' knowledge of geographical terminology. Most responses demonstrated that candidates knew that a tributary is a connecting stream. Weaker responses needed to be expressed more clearly often implying or stating that the stream was flowing away from the main river. Most candidates attempted this question.

(ii)   Most candidates attempted this question. Many responses often referred to a river or its tributaries but then needed to link them to the surrounding area.

(b)   Most responses correctly identified two advantages of doing a pilot study. The distractors which were most common were 'draw a sketch map of the river's course' and 'look at how the river changes downstream'.

(c) (i)   This question specified the need to refer to the diagram shown in Fig. 1.1 rather than give a pre-learned answer. Many responses did this successfully. Marks varied according to the detail and accuracy of the description of the method. Some responses did not separate measuring the distance downstream and positioning the poles at either end. Common errors were references to people at either end of the measured distance rather than the poles, not specifying the measured distance as 10 metres, and not being precise about where the float was put into the river. Weaker responses ignored the diagram and described how a flow meter measures velocity or explained how velocity was calculated, which was not specified in the question.

(ii)   Stronger responses referred to obstructions in the river delaying the float, the wind blowing the float and the float not moving in a straight line downstream. Most responses wrote about possible errors made by the students while doing the measuring. They were restricted to one mark for such ideas.

(d) (i)   Responses usually gave a better description of measuring depth than measuring width. The answers needed to use the technique shown in Fig. 1.2 rather than giving a pre-learned answer. Some responses made simple statements such as 'measure width with a tape measure' and 'measure depth with a ruler' but then needed to describe how the measurements were made. Generally more details were described in measuring the depth. Weaker responses often referred to the 'ends' of the river rather than the sides or the banks.

(ii)   A small number of candidates did not attempt the question. Most responses accurately plotted the three depths. Many responses also followed the example of the other two sites to complete the cross-section accurately. Weaker responses needed to draw the line across the section or finish the cross-section line at 0 metres depth.

(e) (i)   Most responses gave a completed accurate calculation. Some weaker responses needed to show the calculation working rather than just writing the answer to gain higher marks. This was often given to four decimal places and then rounded off to two decimal places.

(ii)   Most responses correctly agreed with Hypothesis 1 and used data to support a conclusion.

(iii)   Many responses to this question were of a weaker quality. The best responses stated that discharge could be affected by tributaries joining the river or a dam being built across it. Weaker

responses did not show an understanding of why discharge changes downstream. Many answers referred to width, depth, cross-section area and velocity but these do not explain changes in discharge.

(f) (i) Most candidates answered this question. Many responses gave clear descriptions of how to measure the angle of slope of the riverbed. They referred to a clinometer and gave a detailed description of how it is used. Weaker responses referred to poles but showed little understanding of how they were used. Similarly response named the clinometer but showed limited understanding of how it was used.

(ii) Most responses correctly plotted the average angle. Mistakes in plotting were the result of reading the scale incorrectly and drawing the line at 7.2°. Another error was to draw the line too low at 6.1°.

(iii) Many responses made the correct conclusion that Hypothesis 2 was true and they gave supporting data from the three sites. Weaker responses did not use data or failed to identify the sites to which the figures referred.

Question 2

(a) (i) Responses usually described climate as average or long-term, sometimes mentioning a period of time. For weather they usually focused on short-term or daily. Some responses went into detail about which measurements would be taken under the categories of weather or climate, but this was not answering the question. Some weak responses showed a misunderstanding of the question and wrote about the climate on the two farms.

(ii) Most responses correctly identified the three characteristics. The most common mistake was to mix up gradient and altitude.

(b) (i) Responses were generally more successful in comparing land use than field size. Weaker responses did not correctly interpret which land use was above and below the 200 metre contour line. Also some referred to 'grazing' above 200 metres which was not accepted as grassland below 200 metres could also be used for grazing. The answer had to be specifically rough grazing. Many weaker responses incorrectly referenced field size. Weaker responses mis-read the question and compared land use and field size between the two farms.

(ii) Most responses gave the correct answer. Weaker responses miscounted the number of fields and answered five.

(iii) This question was also well answered. The most common shape suggested was a rectangle, but other shapes were also credited. Weak responses mentioned edges and angles without focussing on the shape, as stated in the question.

(iv) Most responses were successful in comparing the characteristics of the two farms. The most common error was to reverse the pastoral and arable ticks, thus gaining credit only for upland and lowland differences.

(c) (i) Most candidates answered this question. Most responses showed a correctly completed pie graph, although, some reversed the order of the land uses. Pie graphs need to be completed in the order given in the key. Some responses shaded the grassland segment using diagonal lines when the key shows horizontal line shading.

(ii) Most responses gained marks by referring to different physical factors at the two farms and relating these factors to the dominant land use. The strongest responses used data to show differences in the physical factors. Sometimes responses included figures which were not linked to a statement and so these were not credited. Weaker responses needed to identify the land use at the two farms or write in less general terms about differences in physical factors.

(iii) Many answers were repetitious of ideas in the previous answer, or they described how the land use might vary rather than why it might vary. The best answers wrote about soils, suggesting that they should be fertile to grow crops. A few responses referred to mechanisation being influenced by relief. Weaker responses that wrote about climate were generally vague and needed to explain why warmer temperatures would affect farming.

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(d)(i) Most responses showed both bars drawn accurately. An error made in some responses misread the scale and draw the cost of machinery bar too high at 76 per cent rather than 68 per cent.

(ii) Better responses referred to different units shown in Table 2.5. Weaker responses referred to the wrong outputs from the two farms.

(iii) Most responses correctly stated that Hypothesis 2 was false. Their supporting evidence varied in quality. Responses needed to compare the input costs rather than just quoting the statistics with no interpretation. Better responses compared outputs by giving different examples from the two farms. Weaker responses needed to go further than stating the outputs were different or just writing about their value. An error made by some weaker response was to describe the outputs as 'one farm is crops and the other is animals' without identifying either farm.

(e) Responses identified different ways to extend the fieldwork. The most popular suggestions were the use of a questionnaire or interview with the farmer. Other common ideas included to search online or other secondary sources, make return visits to the farm throughout the year, and watch the farmer at work. Some suggestions were too vague to credit such as 'visit the farm', 'ask the farmer' and talk to the farmer'.

(f) The final question tested candidates' knowledge of a mixed farming system. Better responses gave specific advantages such as using animal manure as fertiliser and feeding crop waste to animals. Other benefits included spreading the risk having different sources of income, and a more balanced workload throughout the year. Weaker responses needed to go further than referring to general ideas such as higher output, more profit or more food produced without relating their answers specifically to mixed farming.