

GEOGRAPHY

Paper 2217/12 Geographical Themes 12

Key messages

To perform well on this style of paper candidates should:

- Follow the examination rubric correctly, answering three questions, one from each section.
- Choose their three questions with care after reading them all through and studying the resources provided with each one.
- Attempt all parts of their chosen questions making sure that no sub-sections are omitted.
- Read questions with care, underlining key words such as command words and words that indicate the context of the question.
- Know how to respond to command words used in questions – e.g. ‘describe’; ‘identify’; ‘explain’ and ‘compare’.
- Identify the correct focus specified in the question – e.g. causes or impacts; problems or benefits; people or natural environment; local or global.
- Learn the meanings of geographical words and phrases to define or accurately use them. When defining terms, candidates should not repeat a word or words as part of their definition but use alternative wording to show their understanding.
- Consider the mark allocations and answer spaces provided in the question-and-answer booklet to write answers that contain the appropriate detail and number of points.
- Write as precisely as possible to avoid making vague or general statements.
- Give full answers wherever possible, especially in the final two parts of each question, developing ideas as appropriate to the question rather than just including general information about the topic being tested.
- Be confident in using graphs, data tables, photographs, written text, diagrams and maps of various types. Completion of graphs and maps should be carried out with care using a ruler and sharp pencil.
- Refer to source materials used in the resources to support ideas rather than directly lifting material from them without any interpretation, making sure that evidence from data is given only where required to support an answer.
- Make accurate use of the information provided, such as the compass, scale and key on maps.
- Practise the skill of describing the features or characteristics from a photograph.
- Base their answer only on the information in a given figure if the rubric of a question instructs them to do so, e.g. by the use of the command ‘identify from Fig. X’.
- Learn case studies for each topic so that appropriate ones can be chosen for each question attempted.
- Include place-specific information in answers to case study questions but avoid writing a long general introduction at the expense of answering the question in detail.
- Use comparative language and phrases where a question requires comparison or identifying differences.
- Have a clear knowledge of physical processes and be able to explain a process, using labelled diagram(s), geographical terms and clearly sequenced ideas.
- If using the extra pages at the back of the question-and-answer booklet, indicate that the answer is continued and clearly show the number of the question on the extra page.

General comments

The most able candidates performed well across the paper and several excellent scripts were seen. Most candidates were able to make a genuine attempt at their chosen questions and where performance was weak it tended to occur when candidates found it difficult to interpret questions. All candidates seemed to have sufficient time to complete the paper, but the final parts of questions requiring extended answers were sometimes not attempted and/or lacked appropriate detail. The presentation of answers from candidates was

variable, though almost all were legible. Most candidates followed the rubric by selecting a question from each section as required. However, there were cases of candidates making rubric errors. These varied from candidates who made minor incursions into the second question of a section, through those who attempted half or more of a question before deciding to change their mind, to those who did two questions from one section and only one other so that their lower-scoring option would simply not be counted into the final mark. A small minority attempted most or even all six questions. This was poor examination strategy, since their answers were consequently extremely brief, often single ideas, which were frequently irrelevant since little or no time had been given to reading and understanding the requirements of the question. Since every question has the same structure, with increasing marks available in **(b)** and **(c)**, candidates should perhaps be encouraged to look first at these parts, and the degree to which they think they understand the tasks, before making their choice.

Questions 1, 4 and 5 were the most popular questions, but there were good answers seen to all questions, including those requiring extended writing such as the case studies. High quality answers in these case studies included developed ideas with place-specific information, while weaker responses tended to be generic developments of ideas with little place detail to support them. Other weaker responses were characterised by the use of simple, brief statements and/or the inclusion of information, which was not relevant to the question, for example long introductions which simply set the scene rather than answering the question.

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

Comments on specific questions

Question 1

Over three quarters of the candidates answered this question.

- (a) (i)** This was generally well answered. Most candidates identified Tunisia, but a significant minority chose France. This must have been due to their not reading the question properly and focusing on the words 'most sparsely' so looking for the highest figure for either population or density.
 - (ii)** This was generally well answered. There were very few errors, particularly in the calculation, which presented no problem in general. A handful did not gain the second mark due to incorrect rounding to 109.5. Occasionally candidates used the wrong formula for their calculation.
 - (iii)** A common error was to simply refer to the reasons for sparse population in a mountainous area rather than addressing the question, which asked why the distribution of population was uneven in such areas. Most candidates did express the idea of variation, even if in the simplest way. In general, responses focused on relief and the idea that people will live on lower/flatter land. In many cases this was the only point made, but a significant number went on to refer to the fact that people will live near roads within the area and/or where farming was possible, such as along the valleys.
 - (iv)** There was a wide variety in candidate response with the most perceptive answers achieving all four marks while others made only limited points. Some referred simply to what they could see in the photograph, such as the relief/rocky terrain, but better answers added relevant ideas such as the aridity, isolation and the difficulty of producing or obtaining food or work. A common error was to refer to the temperatures without any qualification; another was to focus on the word 'attractive', interpreting this literally rather than explaining why it was not attractive to live there.
- (b) (i)** This was generally well answered, with many candidates referring to tourism (for job and business opportunities), fishing, trade/port/transport and the flat land. Lower scoring responses focused on the perceived advantages of living by the sea, such as the scenery, the leisure activities and the beaches. Many were not helped by the misconception that the sea provides a water source or can be used for hydroelectric power. Some candidates understood that the sea has a moderating influence on the climate, but others struggled to express the idea, making simplistic comments about it being hot, or cool which could not gain credit.
 - (ii)** This was generally well answered, with many candidates scoring high marks for making a variety of points, some of which were developed effectively. For example, they referred to 'the spread of disease', rather than vaguely referring to 'disease'. Development of this point often included reference to sanitation and hygiene and/or quoted examples such as cholera, typhoid and Covid.

The minority of candidates who did not respond well made vague points, such as overcrowding, traffic, service provision, resources, and litter, and made unqualified reference to pollution which is never worthy of credit.

- (c) This produced many excellent responses. The overwhelming majority of candidates chose the China One Child Policy and there were some responses which achieved full marks by referring in detail and precision to incentives, penalties and methods of enforcement, along with exceptions. Some only wrote in detail about one element of the policy (e.g. incentives or punishments). Others wrote detailed responses, but they did not describe the policy, instead focusing on its impacts, which were not relevant. Lower scoring responses focused only on extreme ideas and those providing them seemed unaware of the true nature of the policy.

Many candidates wrote extensive and irrelevant preambles at the beginning of their responses. These typically went into detail about the problem of overpopulation in China that led to the bringing in of the policy. Indeed, some responses got not much further than this and did not describe it as required.

Those candidates who chose to describe the 'Code de la Famille' in France's pro-natalist policy tended to score high marks as their answers contained accurate and well-focused descriptions.

By contrast, there were some answers about Italy, Russia or Singapore, most of which were brief and simplistic and tended to be low scoring.

Question 2

Less than a fifth of candidates answered this question and some made rubric errors.

- (a) (i) This question was answered correctly by most candidates. The most common incorrect answer was migration.
- (ii) While some candidates put all three countries in the correct order to score both marks, a significant number achieved only one mark for positioning Ghana correctly but putting Peru and Germany in the incorrect order.
- (iii) A significant number of candidates did not understand the idea of the relationship between the variables plotted on the scatter graph, but others did achieve at least one mark for this question for either identifying the positive relationship or referring correctly to this by reference to continents. Some referred to countries instead of continents. Very few included a reference to the strength of the relationship or anomalies.
- (iv) Most candidates referred to urban pull factors with jobs, education, health facilities, water supply and food supply being the most common. While in general the question was fairly well answered, a few answers did not gain credit as they were vague, referring to better services, quality of life and resources. Others wrote about the reasons for natural population growth in LEDCs rather than the increase in the percentage living in urban areas.
- (b) (i) While there were a few answers which interpreted the line graph well, using data to support the points they made, many others did not do so. Many candidates were able to identify when there had been an increase, but the question asked about 'changes in the rate of increase'. 'Increase' without qualification was not sufficient, and only the most perceptive answers referred to slow or rapid increases between certain dates, for example. Many candidates included statistics, but often they were not accurate; even when they were, they needed to support relevant statements to be worthy of credit.
- (ii) This question was not well answered in general. Those who did score some marks typically referred to reasons why farmers may remain in rural areas, with the success of investment in fertilisers, seeds and machinery resulting in increased food supplies being the most common focus. Very few added any balance to their answer by referring to factors which may still 'pull' people to urban areas despite the availability of the low-cost loans. Indeed, a significant number of candidates missed the point entirely by either suggesting that because the loans were 'low-cost' they would be inadequate or writing about how the loans might impact natural population growth in the cities.

- (c) Many answers focused on housing but included limited detail, merely stating ideas such as new houses having been built, water pipes installed etc. without any further development, therefore achieving scores within Level 1. A common error was to refer to job creation but without specific reference to an appropriate job. Candidates achieving Level 2 were able to develop their points by explaining how the attempts at improvement had helped improve the lives of people in squatter settlements. Many candidates named a country as their example rather than a named urban area. Common valid examples were Indian cities such as Mumbai, African cities such as Lagos, and South American cities such as Lima or Rio de Janeiro. Even when correct examples were used it was rare to see place-specific detail.

Question 3

This was a less popular question than **Question 4**, with approximately one quarter of candidates attempting it. Overall performance on it was not as strong as on **Question 4**, but there were a small number of excellent answers seen.

- (a) (i) This was well answered, with almost all candidates choosing the correct single option which showed understanding that a sea wall is a form of coastal protection and that the diagram featured a clifftop house that would be under threat if it had not been built.
- (ii) Many candidates seemed to struggle to identify and adequately explain the erosional risk factors either labelled or implied in the top diagram. Those who simply lifted the label 'clay cliffs' often did not explain that clay is a weak/soft/less resistant rock. Some were able to suggest valid ideas about the erosive power of storm waves or that they were destructive. There were very few mentions of the lack of vegetation cover on cliffs that would be regularly slumping as it was undercut at the bottom. Few mentioned the absence of a protective wall.
- (iii) Many did not focus on the requirement to write about how the sea wall would impact *the beach* (emphasised on the question paper). The lowest scoring answers simply explained how a sea wall would function in blocking/reflecting wave energy so that the cliff would not erode and the house would be safe with no link to the beach in front of the wall. Perceptive candidates, however, were able to understand that the protection of these cliffs would reduce material being added to the beach so the beach would become narrower. Those who knew about curved sea walls refracting the wave energy back to the beach were able to explain that this might lead to more scouring by backwash. There were many answers about the aesthetics of sea walls and their impact on access, but these had no relevance to a question about changes to the beach itself.
- (iv) Many candidates were able to correctly identify that groynes stop the process of longshore drift and that rock armour absorbs wave energy. The best answers were able to adequately link these basic ideas to how these methods of protection would reduce erosion by creating a wider beach that would make waves break further from the cliffs and result in less erosion/undercutting of the sea wall respectively.
- (b) (i) The question had two very different and clear photos of bays, yet many focused almost exclusively on the headlands and cliffs rather than the bays and their beaches, which was irrelevant to a question solely about bays. A few did not identify which image their points referred to, saying 'one is.... the other is....', and a significant number of answers did not make comparative points. Answers which scored well compared the dimensions of the bays, identifying that Fig. 3.2 is much wider but less deep/long than Fig. 3.3, and that the material of the bay shown in Fig. 3.2 is white/grey and likely to be rocks/pebbles as opposed to Fig. 3.3's expanses of sand.
- (ii) Many candidates understood that bays and headlands are the result of hard and soft rocks outcropping along a coast. Some were able to refer clearly and accurately to their different levels of resistance to erosion, using the idea of discordancy well to gain full marks. Lower scoring answers showed awareness that bays and headlands are the result of erosion, but did not develop this. Some guessed, referring to irrelevant processes such as longshore drift.
- (c) This question was often answered very well with clearly developed ideas showing the sequence of erosional processes – such as hydraulic action and abrasion/corrasion causing changes from an initial crack or fault on a hard rock headland enlarging into a cave, the cave being eroded completely through the headland to form an arch, and the final collapse of the unsupported and weathered arch to leave a stack – with a clear and labelled sketch/diagram to achieve full marks. Lower scoring answers simply stated that a crack becomes a cave which becomes an arch, which

ends up as a stack. Some took the sequence a step further than the requirement of the question in explaining how a stack could be undercut and collapse to form a stump; this was irrelevant and took up time that could have better been spent elsewhere.

Question 4

This question was chosen by approximately three quarters of candidates. Overall performance on the question was stronger than that on **Question 3**.

- (a) (i) The questions on weather instruments and the recording of weather were generally approached with confidence. Most candidates correctly identified the Stevenson Screen.
- (ii) Most candidates were able to successfully identify two weather instruments kept inside the Stevenson screen. The most common incorrect responses were the anemometer and the sunshine recorder.
- (iii) Most candidates were confident in identifying three factors present when selecting the ideal site for the Stevenson Screen, with many describing more than the three required points. The most common responses were 'away from trees and buildings/in an open area' and 'in a fenced/secure area'.
- (iv) In discussing different design attributes of the Stevenson Screen, there was a significant variation in both accuracy and the level of detail provided for the four identified aspects. The most consistent responses in terms of accuracy were based on the screen having slatted sides and having legs one metre in length, with appropriate comments on air circulation and avoiding recording air temperature at ground level. Although many candidates could explain why the screen was constructed of wood and had a double roof, there was some confusion between conduction and insulation. Most responses did not include this vocabulary, with weaker responses using vague statements such as 'does not get hot'. Common errors included reference to wood being more durable than other materials/not rusting, the double roof protecting the equipment from 'the weather' or rain and the legs avoiding splashes from the rain and interference from animals.
- (b) (i) Although most candidates identified at least one difference between the two photographs of clouds, it was apparent that in general they were less confident in responding to this question than those relating to weather instruments. Common answers referred to differences in the density, coverage and likelihood of rain. Some correctly identified the different cloud types by name. As with **3(b)(i)**, a few did not identify which image their points referred to, saying 'one is.... the other is....', and a significant number of responses related to only one photograph and did not make comparative points.
- (ii) Many candidates identified a standard measuring schedule (usually daily and at the same time each day) and referred to placing the rain gauge in a suitable specified location. However, in discussing the process of measuring precipitation, they were much less precise. Although there was occasional mention of a measuring cylinder or melting snow before measuring precipitation, very few explained how to measure the precipitation. Many candidates wrote long, convoluted answers that were devoid of relevant points, including surplus or inaccurate detail such as recording the data in a table, dividing the whole month by the number of days, only measuring it when it rained, being careful not to spill the water, etc. So, while they were lengthy, such answers were low scoring.
- (c) This was well answered by many candidates and there were strong Level 3 answers which included place-specific information. The Ganges, Indus, Nile, Mississippi, Elbe and Zambezi were popular choices. Good responses explained in detail, developing several ideas, typically excessive rainfall, deforestation and urban development. Weaker answers simply listed reasons or wrote in vague terms such as 'The flood was caused by the river having too much water in it'. Many wrote about the effects of floods rather than or in addition to their causes. This simply wasted their time when they could have been developing their points about the causes of the flood to score higher marks.

Question 5

This question was slightly more popular than **Question 6**. Overall performance was very similar on the two questions.

- (a) (i) The majority of candidates answered this question correctly as Africa. A small but significant number incorrectly mentioned names of countries, the most common being Somalia.
- (ii) Most candidates correctly expressed the idea as the difference between a general lack of food (starvation), compared to the presence of food but an imbalance or lack of nutrients (malnutrition). Some candidates wrote about the 'hunger' of the people in the context of starvation, which was not sufficient for credit.
- (iii) Most candidates used the key to the map to answer correctly and score full marks.
- (iv) Very few candidates earned more than half marks on this question. Many were able to identify that the lack of rainfall in a drought would cause the crops to die, and some also identified the consequences this would have on animals, whose meat is another source of food, and whose death would lead to food shortages. The direct point of there being a lack of water and thus no water being available for irrigation was also mentioned by some candidates. Only the most perceptive referred to the fact that drought would cause food prices to rise. Similarly, the impact on farmers was mentioned by such candidates who were able to explain that they would have to spend more time fetching water, thus limiting their available time for cultivation, as well as the possible illness, dehydration and death of the farmers – all of which would cause further shortages of food in the longer term. A common error was to describe what drought is, or its impacts on society at large, rather than focusing on food shortages. Indeed, there were some who did not appear to know the meaning of drought and instead wrote about the impacts of heavy rainfall or pests.
- (b) (i) Most candidates gained at least one mark for stating that the expense of importing crops by an LEDC was unsustainable, seeing as the country was likely to be lacking the necessary funds. A significant number of candidates identified that this would result in debt and/or being dependent on another for its subsistence, especially because in cases of crisis such as war, the imports may suddenly stop. A very large number of answers spoke of the food being inedible by the time it arrived, which was not a valid point. Others commented on the potential environmental issues resulting from transportation of large amounts of food products over long distances which was worthy of credit, given the reference to sustainability in the question.
- (ii) There were many perceptive responses. All three methods were chosen and justified by many candidates, though methods B and C were the most popular. Whatever their choice of method, weaker responses tended to just mention one or two ideas either for the chosen method or against those rejected, in contrast with the higher scoring candidates who included more detail, in some cases developing their ideas. Not all candidates read the question carefully, so they did not write about the disadvantages of the two methods rejected, limiting their marks. Others wrote instead about the disadvantages of the method which they had chosen, which were irrelevant. Some answers displayed impressive environmental awareness, as shown in their rejection of Methods B and D. The points that many made about the impacts of loss of forest and use of fertilisers on the natural environment were particularly relevant when sustainability was being considered.
- (c) The highest scoring answers tended to focus on distinct areas such as the Ganges Valley or specific farms, probably local ones known to the candidates. The question asked candidates to describe *and* explain the agricultural land use of their chosen farm or area. Some candidates did not name a specific farm or area and referred to farming in general or in a named country, producing limited responses accordingly. A lot of descriptive answers were given, listing the crops grown or animals kept, but without explanation as to why the area was particularly suitable for this land use. Such answers were restricted to Level 1. Only answers which explained the land use by reference to the climate, water sources, relief, demand or soil type, for example, could potentially bring a response into Level 2 and beyond. As with other case study answers, many responses introduced irrelevant background detail, such as long descriptions of processes of how cows are milked or fruits processed into a commercial product. Candidates need to read each question with care, so they do not overlook the key information needed and do not waste time including irrelevant information.

Question 6

This question was slightly less popular than **Question 5**, but overall performance was very similar on the two questions.

- (a) (i) Most candidates were able to give an acceptable definition of a transnational corporation.
- (ii) Most candidates were able to correctly identify China and Vietnam from Fig. 6.1.
- (iii) Most candidates scored at least one mark, but few got full marks. The most common acceptable responses were that Asia had most factories and Africa/Australasia had few. Some candidates impressively used terminology associated with distribution e.g. widespread/uneven/clustered. By contrast, many low-scoring answers did little more than list countries, which is not acceptable as a description of a distribution.
- (iv) Many candidates achieved at least half marks. All mark scheme ideas were regularly seen, but the creation of work and gaining of foreign currency were the most common advantages given, with exploitation and the negative impact on local producers being the most common disadvantages. Errors frequently seen were references to the availability/cheapness of Nike shoes as an advantage and a lack of specificity when referring to pollution or infrastructural improvements.
- (b) (i) Most candidates were able to correctly identify the three terms.
- (ii) Many candidates wrote in broad terms about 'technology' rather than naming different types of technology and some wrote about technology (e.g. robotics/automation/mechanisation) without linking their ideas to its contribution to globalisation. The most common valid answers focused on the use of the internet and technological developments in the transport industry. However, there was a lot of repetition in these responses, many of which lacked the specificity required. Well thought out and detailed answers to this were in the minority.
- (c) The most impressive answers tended to focus on common textbook examples of areas such as Silicon Valley in the USA or the M4 corridor in the UK, or they used specific factories such as Toyota at Burnaston, Derby in the UK or Pipri iron and steel works in Pakistan. There were also some good answers using smaller factories or small-scale industrial areas, probably local ones known to the candidates. The question asked candidates to describe *and* explain the location of their chosen factory or industrial area. Some candidates did not name a specific factory or area and referred to industry in general or in a named country, thus producing limited responses. Others used TNCs such as McDonalds and Walmart in terms of their sales branches rather than production, missing the point of the question completely. A lot of descriptive answers were given, describing aspects of the location, but without explanation as to why the area was particularly suitable for this industry. Such answers were restricted to Level 1; only answers which explained the location of the factory by reference to, for example the availability of raw materials, transport links, energy supply and market could bring a response into Level 2 and beyond. As with other case study answers, some candidates introduced irrelevant background detail or descriptions of processes and products, a problem if this was at the expense of referring to location.

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Key messages

- The best answers are to the point. Candidates should plan their longer written answers to produce focused responses. On this particular paper some responses to **Question 1(e)** included material on vegetation and human features which were irrelevant. This is also linked to the understanding of key terms, in this case 'relief' and 'drainage', which should be practised. Candidates should be able to distinguish between human and natural features.
- More practice on grid references, distance calculations, and compass direction and bearings would be beneficial. Assessment of highest and lowest points in an area should be determined not only from spot heights and trigonometric points but also from interpolation from contours, for example in **Questions 1(c)(iii)** where the completion of the cross-section was for the most part, inaccurate and **1(e)** where the highest point of the relief did not go beyond the spot height at 1634m.
- Candidates should make sure they state the units when quoting data, e.g. metres above sea level from the map extract for **Question 1(e)** and population in millions from **Fig. 2.1**.
- Candidates should study the command words in all questions carefully. For example, in **Question 3(c)(i)** they were asked to describe the distribution; therefore, unless isolated, individual places did not gain credit. In **Question 4(a) and (b)** candidates were asked to describe the two rivers and their channels and then, their valleys. Therefore, there was no credit for comparing them or explaining the features described.
- When answering descriptive questions, such as from maps and photographs, candidates should avoid using negative phrases, i.e. stating what is not there, e.g., in the case of an answer to **Question 4**, 'The channel is not steep', or 'There are no rocks on the river bed'.
- Candidates should be able to use correct terminology when referring to locations or distributions: e.g., 'north' and 'south' and not 'above' and 'below' in **Questions 1(b)** and **6(c)(i)**.
- When candidates run out of space and write on the extra pages, they should make sure that the answers have the question number and part written accurately. In addition, they should write 'Continued on extra pages' at the end of the first part of their answer.

General comments

Most candidates made good use of geographical terminology and demonstrated their geographical skills in interpreting maps, graphs and photographs. The standard of mapwork skills exhibited a wide variation.

Some answers were so brief that they did not clearly answer the question, for instance, some one-word answers to **Question 6(c)(ii)** such as 'overpopulation' or 'unemployment'.

In general candidate performance in **Question 1** tended to be weakest. Overall, **Questions 2** and **6** were done particularly well. **Question 5** was found to be a little more difficult.

Despite there being some individual question parts not being attempted, especially for **Question 1**, there was little evidence that candidates ran out of time to finish the paper. While most were able to write accurately and effectively to convey geographical ideas, there were times when writing could have been neater. Most made good use of the space for their answers, in line with the number of marks available. Those using the extra pages tended to do so when their original answer was crossed out or where their writing tended to be large.

Comments on specific questions

Question 1

- (a) Candidates were able to find features on the map from Fig. 1.1 and identify them using the key with ease, and therefore, scored well on this question. The name of the river at **A** was the *F. Rienza*, although a few candidates wrote *Schotterwerk Cava di Ghiaia*, a name written across the river and not alongside it, which is the recognised convention for the name of a river. The feature at **B** was a *main road*, although some stated it was a *bus stop*. Since feature **B** referred to the whole line on Fig. 1.1, this response was not counted. Feature **C** was a *path with signs*, which was distinguished from just a path by the colour red instead of black. The height above sea level of the spot height at **D** was 1412m.
- (b) This was generally answered well, with most candidates clearly able to describe the course of the railway which crosses the map. The direction of the railway was from *north-west to south-east* or *east or vice versa*. There were a few candidates who were preoccupied with describing every bend, but only the general direction was accepted. The terms 'top', 'side', 'edge' of the map instead of compass directions were not credited. Many recognised that the railway curved, although the term 'not straight' – a negative statement – was not accepted. Others noted that it followed the course of the river, the *F. Rienza*, as well as passing through the settlement of *Niederolang Valdaora di Sotto*. The fact the railway went through, under or over bridges was creditworthy; so was the fact that it went over/under roads and over rivers. However, 'going through' or 'connecting with roads and rivers' was not acceptable. In approaching this sort of question candidates are encouraged to think of the reality of the area and picture what happens. Very few candidates referred to the relief of the area, so the fact that the railway is found on relatively lower, gentler land in a valley was seldom seen.
- (c) The answer to (i), the feature at **X**, was a river or stream, the *Rio Furcia* or *Furkelbach*, but since there were several features in close juxtaposition, *minor* or *other road* or *path* were also credited. In (ii) the settlement at **Y** was *Mitterolang di Mezzo*, although *Moar Tharer* was also accepted. Many candidates did not name a settlement; some gave a settlement type such as nucleated or linear, while others named another feature, for instance a house. In **part (iii)**, despite a generous tolerance, most candidates failed to complete the cross-section correctly. It required a line rising steadily to touch the left-hand axis above 1350m and below 1450m. Some candidates left some parts of **Question (c)** blank.
- (d) It was apparent that many candidates had not practiced the skills needed to answer **part D** and were wildly out on some of their calculations. In (i) the distance along the road from the junction along the road at *Wegmacher* to where the road meets the eastern edge of the map at 749857 was 1925m. A generous tolerance of between 1750 and 2000m was allowed. In (ii) the bearing between these points was 29°, with a one-degree tolerance allowed either side of this figure. In (iii), the compass direction from the junction was north-north-east. In the latter most of the candidates wrote north-east and it seemed that many had not encountered or learnt the sixteen-point compass. In (iv) the six-figure grid reference of the junction was 741841, although many had written 742842 which was incorrect.
- (e) Those candidates who understood the concepts of relief and drainage seemed to have no problem with this question. Delimiting the question to a block of four grid squares helped candidates focus. Many recognised it as a high or hilly area (mountainous was also credited) and that it was steep. Better responses suggested it was gentler and or lower in the north. A few stated that the area was north-facing and some referred to the cliffs that were present. However, interpreting contour patterns was a weakness in many answers, with some considering the area to be relatively flat. Whilst the lowest point was identified (1100–1108m credited), the highest point was very rarely correct (1780–1799m credited). Those who did not understand what was meant by relief tended to give descriptions of any features that could be found within the four grid squares. This included *land-use*, *vegetation* and *human structures*.

Many candidates scored more marks on the drainage. References to the intermittent streams and springs were common and some recognised that some of the former were tributaries or formed confluences. Some also mentioned the *Rio Furcia*, a stream in the north-west of the area. Better responses noted that the intermittent streams drained to the north or north-east.

Question 2

- (a) The majority of candidates demonstrated that they were able to read data off the age-sex pyramids for Sweden and South Africa in Fig. 2.1 and stated that there were 300 000 females aged 0–4 in Sweden and 1 million males aged 55–59 in South Africa. The main mistake was a failure to include the units.
- (b) In most cases, candidates were able to interpret that there was a bigger proportion of young people in Somalia compared with Sweden and a bigger proportion of people of working age and older in Sweden compared with Somalia. Some overcomplicated their answers by referring to birth and death rates and life expectancy, or by describing changes within each of the three groups. This particularly occurred for the people of working age with some saying the proportions were equal. Those who described the shape of the pyramid, for instance having a wide base, often did so without interpretation and therefore did not score.
- (c) Most were able to interpret the relative population size of each country and rank them accordingly. The main error was to have Somalia and Sweden the wrong way round.
- (d) A range of reasons were given to account for the relative low number of people aged 20–24 in South Africa. The most common was that many had emigrated to other countries for work or education. Those who referred simply to migration needed to indicate the appropriate direction of migration. Other appropriate answers that were often seen included disease and war, although a low birth rate or high infant mortality rate were also accepted. High death rate, drugs, violence and high crime rate were seen but it was felt that these were either not especially appropriate, or too vague.

Question 3

- (a) Both **parts (i) and (ii)** were well answered with candidates deriving their answers from Table 3.1. They recognised the positive relationship between rank and population size in **(i)** and the negative relationship between rank and the amount of settlements in **(ii)**. Some candidates, however, just defined the terms rank, population size and amount of settlements, so were not answering the question set.
- (b) This question was answered well with most candidates using Table 1 to identify either a secondary school or a range of comparison goods as a service found in the small towns, but not in the villages.
- (c) (i) The best responses used compass directions to identify the large number of settlements in the north-west of Fig. 3.1, which were clustered around Whitehaven, and stated that there was only one key centre (Millom) and one village in the south. Some went on to state that the distribution was uneven. Some noted that many were found by the coast and/or along a (main) road. Lower scoring responses often focused on describing the position of individual settlements (other than the isolated nature of Millom) which did not constitute a distribution. Others were rather vague, for instance describing the settlements as being connected to roads or near the edge of the district boundary. Some referred to settlement patterns such as linear which does not really fit with this map.
- (ii) Many reiterated some of the points made in **part (i)**, but did not explain the benefit of being located on the coast, or near to large settlements. They should have considered the words 'for' or 'to' to develop their answer, for example 'near the coast for imports and exports' or 'for fishing.' The more common correct answers suggested near key towns or Whitehaven, for services, secondary schools or employment. References to tourism, flat land, minerals and fertile soils were sometimes seen and were perfectly acceptable. Many who suggested 'near roads', did not state what these roads were accessing; 'roads for transport' was too vague. In addition, while near 'a water supply' was creditworthy, near the coast for a domestic water supply was not.

Question 4

The best responses simply focused on and described what candidates could see in Fig. 4.1. and 4.2., while lower scoring responses were more generic, seeming to rely more on what had been learnt from the candidates' studies of rivers. Quite a few candidates confused rivers and their channels with their valleys.

Others compared the features of both rivers, especially river speed and width. Many described what was not there, for example 'It is not deep', or 'The river bed has no rocks'. Such negative statements were not credited. The description of human activity such as farming or fishing was also superfluous.

- (a) Those who scored well made it clear for each of Figs. 4.1. and 4.2. whether it was the river or channel that they were describing. For instance, in Fig. 4.1, it was the channel that was wide and not the river itself. The river could be described as having a variable width. There was frequent and correct reference to the meandering, slow flow and the shallow depth of the water. Some noted that the gradient was gentle or even flat. Few referred to the slip-off slopes and the fact they were comprised of sand. For Fig. 4.2, the rocks in the river channel were frequently commented upon, as were the steep gradient and the fast-flowing river. Only some candidates noted the island in the middle of the river channel, or that it divided into two channels. Almost nobody commented on the presence of pools. Potholes could not be seen clearly. No credit was given for reference to processes such as deposition, the presence of interlocking spurs or the vegetation.
- (b) The better responses recognised that the valley in Fig. 4.1 had a floodplain which was wide and gently sloping. Comment was often made on the vegetation and references to grass and bushes were credited. Features referring to the river and its channel were not credited, and the valley here was not regarded as a U-shaped valley. In Fig. 4.2 the valley was V-shaped and features such as spurs, the steep sides, and the rocks on the valley side were frequently credited, as was reference to the trees.

Question 5

- (a) For **part (i)** most candidates used Fig. 5.1 to correctly read off the mean monthly temperature for In Salah in May as 30 °C. However, some used the rainfall figures from Table 5.1 by mistake, to give an incorrect result of 0 °C. Only a minority of candidates stated the mean annual temperature for In Salah as 23.5 °C in **part (ii)**. In many cases it appeared that either the highest or lowest temperatures had been read from Fig. 5.1 incorrectly in making the calculation.
- (b) (i) Many candidates gave a valid difference between the climates of In Salah and Nouakchott. Most common of these were that Nouakchott was wetter than In Salah and that In Salah had a higher temperature range. However, references to temperature were often too general and did not refer to specific months. Consequently, statements like 'In Salah is hotter' could not be credited. Some comments lacked a comparison, for instance 'Nouakchott has rain in August and September' did not say that In Salah had none.
- (ii) Most answers compared latitude rather than proximity to the ocean and so failed to score. It was expected that the answer should be derived from Fig. 5.1, and thus a statement such as 'Nouakchott is on the coast while In Salah is inland' was what was required.
- (c) A range of answers was possible and quite a few candidates did score the full four marks available. The better responses seem to apply the water cycle to desert conditions to explain the lack of rainfall: for example, 'The fact that there were no water bodies or few rivers and lakes, meant that evaporation was low leading to a low amount of water vapour that could condense into clouds'. Similarly, 'the lack of vegetation meant that evapotranspiration was low leading to a similar scenario'. Some also mentioned that there was high pressure which tended to lead to sinking air, so no condensation. There was also reference to the presence of rain shadow areas, cold ocean currents and dry winds. Many weaker responses, though, were rather vague, suggesting some candidates had not studied the topic. Some referred to distance from the Equator or the Tropics rather than distance from the sea, while others focused on the high temperatures leading to a high evaporation rate and low rainfall. The formation of convectional rain and low pressure were also mentioned but not relevant.

Question 6

- (a) Most candidates were able to correctly identify the type of industry for each of sector's A to D using Fig. 6.1. If mistakes were made it was usually that quaternary and tertiary industry were the wrong way round. Occasionally some candidates wrote primary industry for both sectors A and B.
- (b) The majority of candidates successfully interpreted Table 6.1 to identify the true statement in the table to be the third one.

- (c) (i)** Most candidates described the distribution of the twenty-one low-income countries shown in Fig. 6.2 well. They pointed out that these were found in Africa or Central Africa, and near the Equator or between the Tropics. Some commented on the uneven distribution, and others commented that it was clustered. Quite a few candidates wasted wordage by repeating their description of the tropics at length, whilst others used terms such as 'above' and 'below' the Tropic of Cancer or Capricorn or the Equator, when compass directions should have been used.
- (ii)** A wide range of acceptable reasons why the countries shown in Table 6.1 and Fig. 6.1 have low incomes were seen. These included the reliance on primary industry, lack of education, war or political instability, and corruption. However, many responses were vague and not developed to show how they hinder development. Examples are high unemployment, overpopulation, poor transport and 'because it is an LEDC'. In addition, 'a lack of resources', was seldom qualified.

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Key messages

To perform well on this paper candidates should:

- When answering hypothesis questions that ask whether they agree or not, always give their opinion first before any supporting evidence: this will usually be 'Yes', 'No', or '*Partially*'/'*To some extent*'. If questions ask for answers to support their decision with data, then statistics must be used from the resources referred to. 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. The use of 'only' with statistics is not accepted as a comparative statement.
- If comparing statistics, note that it is important to use paired data rather than one set on its own.
- Check that they are using the resources that the question refers to, e.g. 'Support your conclusion with evidence from Fig. 2.4 and Table 2.3'.
- 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 marks by not attempting these questions.
- Consider the mark allocations. Examiners do not expect candidates to be writing outside of the lines provided, so candidates should not write a paragraph when only two lines are given as this wastes time.
- If candidates need to write more than the lines allow, indicate this with a phrase such as '(continued on additional page)'.
- When completing graph work, use a dark-coloured pencil or pen. They should use a ruler to draw lines. Candidates should always shade bar graphs and pie charts accurately. They should make sure their shading matches what is shown in the key.
- When they think that they have finished, check that they have not omitted a question. Some questions might have been overlooked if they are on pages with a lot of graphs or maps. Candidates should make sure that they have answered the questions on every page of the paper: this applies especially to questions where they are asked to complete tables, diagrams, graphs or maps.

General comments

For teachers preparing candidates for this Paper, most matters to consider relate to candidates' misunderstanding or ignoring of command words and to the importance of experiencing fieldwork – even if it is only in the school grounds or simulated in the classroom.

Where candidates did not score well, it was often a case of their not fully reading the question or completely missing out straightforward graph completions.

Although this is an *Alternative to Coursework* examination, candidates are still expected to show that they know about fieldwork equipment, how it is used, and fieldwork techniques. Any fieldwork experience is worth giving, even if there is 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. Sampling techniques remain an important part of fieldwork that can easily be taught and demonstrated within the classroom or school and yet they are not done well by many candidates. Measuring infiltration rates, for example, is one sort of fieldwork that could easily be carried out within most school grounds and would have helped with **Question 2**. Questionnaires and sampling exercises can be carried out and demonstrated without leaving the school, e.g. sampling of candidates using random, systematic or stratified techniques or using internal questionnaires.

Comments on specific questions

Question 1 focused on fieldwork in the city of Hanoi in Vietnam and an investigation into air pollution. Candidates needed to understand how to carry out traffic counts at sites close to and away from the CBD, how those numbers changed and how they might be related to air pollution measurements at the same sites. To test practical skills, they needed to complete a choice table outlining four important features of a traffic count, a horizontal bar graph showing vehicle numbers, and analyse an *Air Quality Index* table as well as complete a scatter graph relating vehicle numbers to the AQ Index. They were asked to make judgements about two hypotheses and then to justify those decisions with evidence.

- (a) (i) The vast majority of candidates knew the most important features of a traffic count. Most scored three or four marks; the main errors being to choose Row 8 instead of Row 1. Choosing Row 4 was also a common mistake. A small number gave less than (or more than) the four ticks required.
- (ii) Very few candidates gained marks here. Many thought that counting the vehicles for a limited time of ten minutes would make it more accurate or would stop the candidates getting too tired. Few recognised that measuring for ten minutes at each site at the same time would allow for comparisons between sites, would be reliable and be an appropriate time for them to keep their focus and concentration. Only a few referred to possible issues related to traffic fumes and heat. A few mistakenly thought one group was going to visit all nine sites in ninety minutes so that was why they would only take ten minutes at each site. Some thought ten minutes was an appropriate length of time to measure speed.
- (b) (i) Site 5 was correctly chosen by almost all candidates as the one where most vehicles were counted. Giving Site 2 was the most common error.
- (ii) Most completed the graph accurately with a correct horizontal bar plotted at 310. A few marked it at 320 or 410 and a small number did not attempt it or did not use the provided 'starter lines' to draw it.
- (iii) Most candidates did choose the correct decision of 'Partly true with some exceptions' for the hypothesis, but rarely could they justify it with reference to the evidence provided. The graph and table clearly suggested an overall trend of vehicle numbers decreasing from Site 1 (409 close to the CBD) to Site 9 (18 furthest from the CBD); however, there were also exceptions at Sites 2, 5 and 7. Most candidates gained a second mark by recognising that Site 5 was an exception (though the term was rarely used) as it had the highest number of vehicles at 616 and was away from the CBD; a few pointed out Site 7 was similar too. Overall, the use of data was not done well; quite a few answers gave general statements without any data which restricted the marks that could be awarded. Many just repeated the hypothesis as if it was a new statement. Others described traffic patterns in the city as people drove to work, school or shop.
- (c) The majority knew that secondary sources are those that had already been produced by other people, organisations or 'someone else'. The most common examples given included the internet, newspapers, textbooks and journals. Questionnaires, libraries and references to 'external sources' were not appropriate as examples. A few related secondary sources to secondary industry.
- (d) (i) Almost all candidates correctly chose 'very unhealthy'. A small number of answers were seen that chose 'hazardous', and some carelessly missed out the 'un' part of 'unhealthy'. A few missed out the 'very...' part of the correct answer. Some gave the colour purple instead of the level of health concern.
- (ii) Candidates needed to read all the advice text carefully before making their choice. The correct choice was 'Orange', but almost every colour on Fig. 1.2 was supplied in answers overall. While four colours did refer to 'reduce prolonged outdoor exercise' only the orange colour referred to 'Children...should reduce prolonged exercise'.
- (e) (i) Correct plotting of Sites 6 and 7 was needed for both marks here. It was important to add the Site numbers by the two plots to match the other plots to access both marks. Some gave accurate plots without the numbers, so were restricted to one mark maximum. While the majority did this well, some plots were carelessly located. A small number used dots instead of crosses.

- (ii) Most candidates answered that the hypothesis was true, and looking at the graph in (e)(i) it should have been clear that there was an almost perfect positive correlation between the *Number of vehicles counted* and the *Air Quality Index Value*. The best candidates agreed with the hypothesis, stated that one variable increasing caused the other to increase, and backed this up with paired data that proved this – usually using the figures from Site 9 and Site 5. Some referred to the highest Air Quality, which means low pollution, instead of the high *Air Quality Index*, which means high pollution; missing out the word *Index* reversed their intended meaning.
- (iii) The key to getting this right was to focus on the source of air pollution rather than processes. Burning fossil fuels is not a specific source; the factory or industry that does this is the source. Other acceptable answers included power stations, airports and untreated sewage. Inappropriate sources included a common misconception that people smoking cigarettes was a source of air pollution at the city scale. Litter was often seen as an answer. A few ignored the instruction which clearly stated, '**not** including traffic'. Candidates also suggested deforestation and burning trees, methane from cattle, field fires, light pollution, mining, greenhouse gases and water pollution – but none of these was likely to cause air pollution in a major city like Hanoi.
- (f) (i) Questions about the use of a bi-polar technique to compare environmental quality have been frequently used on this Paper, yet quite a few candidates regarded these as questionnaires and wrote extensively about how they would sample and ask people to complete the survey. To emphasise that the student was doing the survey alone, the question stated 'the student himself' to steer candidates down the route of not involving other people or groups/pairs of students. The better answers did give four clear stages to follow: filling in the detail at the top of the sheet, assessing and making judgements about the area using the descriptions for the –2 to +2 scales, giving a score, ticking the right box, and then adding up a total score. A maximum mark of two was available if candidates referred to the correct procedures but involved other people. A small number missed this out completely despite it being listed in the syllabus as a technique they should know about.
- (ii) Working with another candidate would allow two opinions to be discussed and lead to a better judgement by comparing scores, as correctly stated by the better answers. Saving time, visiting more sites, dividing the work and producing more accurate judgements were not acceptable benefits of working together that would produce more reliable results.

The point of doing all the surveys at the same time of day was so that results could be compared as they had been conducted either in the same weather and time conditions. A few candidates gave examples of variables that could change at different times, such as number of pedestrians, weather, vehicle noise and litter.

Not many candidates grasped the benefits of walking around the entire site before making a judgement about its score. Clearly making a judgement based at one point cannot take into account the whole area and could miss factors. A whole-site view would provide a more reliable judgement. A number were concerned about safety.

Question 2 appeared to be more challenging than **Question 1** and some candidates did not attempt responses in parts of it. The question was about studying infiltration and soil moisture content at different sites in a drainage basin. Its initial focus was on how to measure the rate of infiltration with stated equipment and comparing different rates at different sites. Candidates were expected to know how to calculate the infiltration rate and to consider the advantages of using one method against another. They were also required to complete one calculation and complete a line graph, bar graph and scatter graph. They also had to make judgements from evidence regarding two hypotheses.

- (a) Almost all candidates correctly chose Row 5 – *Water soaking into the soil*. All incorrect answers were also seen, especially choosing the definitions of percolation and overland flow.
- (b) (i) There were several stages of using the equipment shown in the diagram to measure infiltration; three were needed for the marks available. The method involved pushing a plastic tube *into* (not *on*) the ground or soil, filling it with water up to 120 mm, and then letting the water infiltrate while timing its progress or rate into the ground. As no time was stated at this stage of the question, it was acceptable to use the watch to time for a fixed period or until the water had completely infiltrated. Most candidates did pick out three stages for full marks. Weaker answers did not refer to pushing the tube into the soil and also thought the tube was filled with rainwater and the watch

timed how long it would take to reach 120 mm. Few mentioned using the scale on the tube. Some suggested stopping the watch every two minutes to check the level, not realising that the water would continue to infiltrate.

- (ii) While the majority plotted these two points correctly, a significant number did not attempt this at all. Some candidates seem to look at graphs and, if they *appear* complete, go straight to the next question which usually involves some analysis of the graph they have not completed. At the top of page 9 above the graph it says in emboldened text 'complete the measurements'. All questions need to be read carefully, and these are relatively easy marks to gain. An occasional error was made by taking 10 and 6 from the wrong axes, resulting in a rather odd line.
 - (iii) Even if candidates did not plot the two points in (ii), the rate of fall that was already drawn clearly shows that Site 4 had a greater/faster infiltration rate from 120 mm to 6 mm than Site 1 that fell from 120 mm to 105 mm. These numbers were on the Table so could have been quoted even if they were not plotted. Centres should note that if there is a Table with data and a graph with plots, the Table should be used for accurate data rather than inaccurately judging graph plots. A few candidates referred to Site 4 as Site 1 and Site 1 as Site 2 in their answers; presumably they regarded the left site as the first one and the right site as the second one.
 - (iv) The majority of candidates gave a correct formula – of which there could be several varieties. Some knew that one figure was divided by another, but figures were often incorrect. The best answers used $120-6/10$ or $114/10$.
- (c) (i) Most candidates did well on this. Answers invariably referred to the fact that Method 2 would be quicker, faster and instant; that it should be more exact, precise and accurate; and, as a third advantage, that it did not involve calculations or that it used less equipment. All of these were valid. What was not accepted though was that this method was cheaper or safer or that it required less labour. Some even suggested it would be very tiring for the students. It was important that candidates read the question carefully here: what was needed were the advantages of Method 2, not the disadvantages of Method 1. Comparing Methods was acceptable, but not absolute statements of Method 1's disadvantages.
- (ii) The 5.1 mm plot proved to be tricky, but the 31.5 per cent plot was more straightforward. Most candidates plotted both well, though a few did plot the cross where the bar should have been and vice versa; they also plotted at 31 per cent. Not all lined up the 31.5 per cent plot correctly above Site 3.
 - (iii) Most candidates agreed with the hypothesis and, in some cases, identified the relationship as a negative or inverse correlation. Sites 1 and 6 were the most popular choices to illustrate this, with paired data used to show that the infiltration rate increased when soil moisture content decreased and vice versa. A small number mixed up the correlations; having stated the hypothesis was true and given the correct data, they called it a positive correlation so did not gain the third mark.
- (d) (i) The question clearly asked for a method to measure the slope gradient. A few candidates, however, thought it was about measuring water velocity or infiltration rate down a slope, and wrote about how they would measure both parameters with mention of soil moisture meters and floats. Some described how to measure a beach profile. The better candidates did refer to the equipment they would use as asked, and usually began with two ranging poles either at a fixed distance apart or at the breaks of slope; the distances would be measured with a tape measure. Then a clinometer would be pointed at an equivalent mark on each ranging pole and the angle could be read off in degrees. A significant number did not attempt this question, yet the principles were the same as the frequently well-answered questions about measuring river velocity or gradient on previous papers. Candidates should remember that a clinometer measures the angle of slope, not the gradient – the latter has to be worked out.
- (ii) As the 5.1 mm plot was difficult given the scales used on the graph, a degree of tolerance was allowed in that if the plot was closer to 5.2 than 5.0 it was credited. Most managed this well. Adding the site number by the plot was not essential to score the mark. However, it would be good practice to match the others, and most candidates did identify it as Site 3. A few plotted the point above Sites 2 or 4.
 - (iii) Some candidates thought that the pattern shown on the graph in (ii) could suggest a relationship, even though the plots were scattered and random. Nevertheless, they thought the hypothesis was

True or Partly True. Even some of those who correctly thought it False then tried to prove there was a negative correlation when there was really none at all. The data mark was awarded for any paired data that went against the hypothesis and proved it could not be true – usually using figures from Sites 1 and 5.

- (e) It was not enough to state that more vegetation meant a higher infiltration rate; evidence of studying Fig. 1.2 was required. This showed that, as vegetation became denser, the infiltration rate increased, whereas with bare soil it was low. The use of contrasting data – i.e. 1.5 mm per min at Site 1 (scrub grass and bare soil) and 17.1 mm per min at Site 6 (dense grass and bush) – gained the second mark.
- (f) Few responses to this gained all three marks. The best answers showed understanding of how people walking in the area could reduce infiltration rate by damaging vegetation and compressing or compacting the soil such that it hardened and became bare. They also showed understanding that the pressure closed air spaces and gaps in the soil and so water could not infiltrate through. The lack of vegetation also meant that roots were no longer creating air spaces for water to infiltrate. The weaker answers could not link the impact of compression to a reduced infiltration rate and wrote about people eroding the soil, or shoes absorbing water or dropped litter making the surface impermeable.