

GEOGRAPHY

Paper 2217/12 Geographical Themes
--

Key messages

To perform well on this style of paper candidates should:

- Follow the examination rubric correctly, answering three questions, one chosen from each section.
- Answer every part of the three questions chosen, in the spaces provided.
- Be familiar with command words used and words which indicate the focus and context of each question.
- Use and interpret a range of different types of graphs to support ideas expressed in answers.
- Interpret photographs, diagrams and maps carefully, referring to relevant evidence in them.
- Be able to describe a distribution from a map and the location of a specific feature.
- Learn specific geographical terms, to define them and/or use them in answers.
- Use comparative words to describe differences or compare features shown on source material.
- Write answers of an appropriate length by considering the mark allocations and space provided in the answer booklet.
- Write clearly and precisely, avoiding vague terms such as 'pollution', 'resources', 'infrastructure'.
- Develop ideas and/or link them to others when extended writing is required in questions worth five or more marks.
- Ensure that responses are entirely based on the source material provided when this is a requirement of the question.
- Learn a suitable range of case studies, including relevant place specific information, and choose them with care to concisely answer the questions selected.

General comments

In this penultimate November session examining the current syllabus a significant number of candidates performed well across the paper, displaying excellent knowledge and understanding and writing answers of a consistently high quality. Whilst other candidates did not perform as consistently across the paper, most did make a good attempt at most parts of their chosen questions. The paper enabled all candidates to show what they knew, understood and could do.

There was a very small number of rubric errors, typically from weaker candidates. In some cases, all six questions were answered, in other cases candidates answered three or four questions from the six, selecting two from the same section rather than one from each section.

The presentation of answers from candidates was generally acceptable and answers usually included an appropriate amount of detail. Occasionally answers worth a small number of marks were too long, mainly due to the inclusion of irrelevant material, whilst some other answers to questions worth more marks were too brief. However, most candidates were guided by the space provided and the mark allocations, the best responses being concise, yet sufficiently detailed and accurate. Some candidates made use of the additional pages at the back of the question and answer booklet. When using these extra pages candidates must indicate that their answer is continued and clearly show the number of the question on the additional page.

Questions 1, 4 and 5 were the most popular questions. There were good answers seen to most questions. There were many high quality answers to those questions requiring extended writing, including all the **part (c)** questions on underpopulation, traffic congestion, waterfall formation, river flooding, tourism and water supply. The strongest answers were those which included developed or linked ideas but were well focused and succinct. Weaker responses were poorly focused with brief lists of simple points, sometimes in bullet points, not all of which were relevant. Some responses included general introductions with irrelevant information about the topic being tested which were not required.

To enable access to the higher levels, candidates need to include place specific detail related to their chosen example.

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

Comments on specific questions:

Question 1

- (a) (i) This question was approached with confidence. Most candidates were able to write an appropriate definition of migration, with 'the movement of people from one place to another' being by far the most common response.
- (ii) Most candidates performed well on this question, with the majority accurately identifying both an internal and an international migration route. It was evident that the majority found the resource showing migration routes in Central America accessible. Most responses were flawless and included a wide selection of migration routes. The most commonly cited example for internal migration was Mexico City to Monclova, while for international migration, typical routes included Guatemala or Guatemala City to Mexico City or Mazatlán. There were, however, occasional instances where candidates confused internal and international migration routes or named examples which were not shown on Fig. 1.1.
- (iii) This question involved candidates describing three pull factors attracting migrants from Central America to MEDCs in North America. Many candidates responded well, with most responses focussed on pulls such as employment, education, political security and health care. Occasionally, candidates referred vaguely to 'more resources', 'a better environment', 'safety' or 'advanced technology' which were not credited. However, the most common error was to use single words without any elaboration, for example 'education'. Candidates needed to describe each pull in such a way as to make it clear that the pull factor was 'the availability of better or good education' or 'access to high quality schools' and/or 'further education institutions'.
- (iv) This task discriminated well, most candidates were able to explain at least one issue whilst many others suggested three or four valid ideas. There were many perceptive responses which showed real understanding, the most common ones relating to jobs, housing, discrimination and language.
- (b) (i) Candidates generally encountered few issues in identifying the three urban areas from Fig. 1.2, based on information about population change presented in the compound bar graph. Most responses were accurate, although a small minority made errors in interpreting the data, for example, some used San Jose as both an urban area with the smallest increase of international migrants and also an urban area with a decline in the number of internal migrants.
- (ii) In this question candidates were required to discuss how far they agreed that receiving large numbers of migrants benefits urban areas in MEDCs. This gave them the opportunity to evaluate this issue which is important in many parts of the world. Clearly there are pros and cons of any migration, to both the receiving area and the destination and many candidates were successful in identifying appropriate benefits and problems faced by urban areas when receiving international migrants. For full marks candidates were expected to consider both benefits and problems, in doing so making a clear evaluative statement. Perceptive and well-informed candidates did this well, whilst others gave one sided responses which did not show the same informed understanding of the situation. Benefits generally were based on the provision of a workforce (skilled, low cost) and the impact that increased labour has on the economy. A significant number also considered the positive impact of increased cultural diversity. Problems frequently tended to focus on the need for temporary housing, whilst others took a more extreme view about problems involving racial tensions and/or criminality.
- (c) As expected, this case study discriminated well and some candidates produced excellent responses describing the problems caused by underpopulation. Candidates generally selected appropriate named examples, with Australia, Botswana and Canada proving by far the most popular. A significant number of responses were purely descriptive, restricting them to Level 1 marks, however, the majority of candidates identified appropriate issues to discuss in detail, including both economic and cultural issues. There was evidence of a minority misinterpreting the

question, placing emphasis on discussing issues surrounding an ageing population rather than underpopulation. Others wasted time by writing lengthy introductions and including details about the causes of underpopulation rather than focussing on its effects.

Question 2

- (a) (i) Approximately half the candidates who selected **Question 2** answered this correctly. The most common incorrect answers were high-cost housing and outer suburban residential area. A few ticked more than one box, which scored zero marks.
- (ii) This was correctly answered by almost all the candidates.
- (iii) The most common correct answers were in relation to the trees/vegetation and tall buildings. Some candidates used the term 'skyscrapers' which was not valid. A small proportion of candidates mentioned the oval shape or the geometric layout. Many candidates wrongly referred to roads and other features in the surrounding area rather than the industrial park.
- (iv) Candidates found this question challenging. Those who read the question stem and understood that this was a redevelopment of a disused/brownfield site avoided the pitfall of writing about deforestation and ecosystem damage. Some candidates were able to suggest reasons why people may be for the building of the high technology industrial park, however relatively few could suggest valid arguments why some people would be against it. Job creation was seen as being the most common benefit. Many candidates mentioned air pollution and noise pollution as disadvantages, however it was rare to see this explained in the correct context i.e. during construction or as a result of increased traffic. A significant number of candidates made it difficult for themselves as they clearly imagined this development to be heavy industry rather than a high technology industrial area. Modern high technology industries tend to deal with research and data/programming so they do not produce bulk products so atmospheric pollution and noise from production would be unlikely.
- (b) (i) Many candidates described one or more appropriate features shown in the image. Most correct answers referred to significant features such as shops, hotels and tall buildings. Many observed that there were lots of people walking around the area, along with features such as tram lines and cycle lanes.
- (ii) Whilst there were a few outstanding answers, showing excellent understanding, the general quality of answers here was poor. A number omitted the question and of those who did answer it, few seemed to have a clear understanding of what is meant by 'sphere of influence', with many vague references to shops, services, advertising and large numbers of pedestrians or tourists. Rarely did answers show any understanding that the area is likely to have excellent access and contain shops selling specialist or comparison goods or providing high order services, thus attracting people from a wide area around Amsterdam.
- (c) This case study discriminated well, and some excellent responses were seen. A variety of examples was used, including well documented textbook examples and ones which were local to candidates. Most common answers referred to the large population, high car ownership, inadequate roads, accidents and rush hour. Candidates listing several of these ideas scored marks within Level 1, however the better responses were those which were developed or linked ideas, allowing candidates to access higher levels. Place specific detail was seen in a number of answers, particularly those using local examples which were familiar to candidates. There were some excellent answers based on local knowledge, including the frustrations caused by poorly maintained roads, failure of traffic lights (robots), or the coincidence of work and school times causing rush hours. As in some of the other case studies some candidates wasted time by including too much background information about the urban area, along with irrelevant information about the effects of traffic congestion.

Question 3

- (a) (i) Most candidates answered this question correctly, identifying the peak discharge of 55 cumecs from the hydrograph.
- (ii) This question discriminated well. Well prepared candidates gave well rehearsed definitions whilst weaker candidates confused overland flow with stream flow and confused throughflow with

percolation and groundwater flow. Some candidates defined the processes by directly using the words being defined in their definitions, for example 'overland flow is when water flows over the land'. Credit is never awarded for such responses.

- (iii) This referred to peak discharge which, as shown in the hydrograph, is delayed. Many candidates identified overland flow and throughflow as reasons for this lag time, whilst others commented on the distance that the water needs to travel from the place it falls within the drainage basin to the channels. The role that vegetation/forests play in delaying discharge was also well understood by the more able candidates.
 - (iv) Generally, the candidates were successful in stating the effects of deforestation and reservoir building on discharge, and many could also effectively explain why they impact discharge for additional marks. Many referred to deforestation increasing discharge, and deforestation decreasing discharge as water is held behind the dam.
- (b) (i) Stronger candidates realised that the focus of the question was a comparison of the inner and outer banks of the river not the vegetation or river processes. The best answers were comparative, stating that Bank X was low, flat and covered with rocks or pebbles whereas Bank Y was high, steep and composed of soil. Weaker candidates did not compare or focused on details which were not relevant.
- (ii) Here it was necessary to explain why the two banks differed from each other. Weak answers tended to do little more than in the previous question where they had described the features as they did not differentiate between the two command words describe and explain. More perceptive candidates identified the section of the photograph in the image as being a river meander, and explained that Bank Y, being the outer bend, was subjected to erosion due to the high velocity whilst Bank X received deposition due to the low velocity of the river. Impressive responses were occasionally seen from high scoring candidates which used terminology such as hydraulic action, abrasion and helicoidal flow.
- (c) The full range of answers was seen here, with well informed candidates producing excellent answers detailing the process by which waterfalls are formed, accompanied by informative, fully labelled diagrams and explained using appropriate terminology. At the opposite end of the spectrum some candidates omitted the question or wrote irrelevant points. Many candidates showed some understanding that the flowing water eroded the soft rock, undercutting the harder rock so that ultimately it collapses and retreats. The level of understanding and detail included distinguished between Level 1 and Level 2 responses. Weak attempts with simple statements scored Level 1 marks but provided these processes were understood and linked together in the correct sequence candidates scored marks at Level 2 or above.

Question 4

- (a) (i) Most candidates successfully identified northern Hokkaido. An occasional error seen was that some candidates ticked two boxes.
- (ii) Many candidates gained two marks by referring to coastal areas in the south, east or south east of Japan. Others named at least two appropriate islands with a very high risk of earthquakes, such as Shikoku and Honshu. Common errors were references to plate boundaries, none of which were shown on Fig. 4.1, or descriptions of discrete locations with very high risk rather than describing the distribution as required. Some referred to the coast as the 'edge' which was not acceptable and directions were occasionally confused.
- (iii) This question discriminated well. Most candidates recognised the significance of Japan's proximity to many plate boundaries with better answers then going on to describe the impacts of plate movement, friction, the build-up of pressure, and the sudden release of pressure to gain full marks. Weaker answers did little more than referring to plate boundaries and a significant number of candidates struggled to express this idea correctly, using phrases such as 'Japan is in the middle of plates'. Common errors were to refer to 'plate boundaries moving' and plates 'colliding', neither of which are accurate.
- (iv) Many candidates gave good responses, focusing typically on factors such as many MEDCs being wealthy countries with jobs and high living standards, along with references to earthquake proof building design and the sentimental value of remaining close to friends and family where they have

lived all their lives. Weaker answers made vague references to 'technology' whilst a significant number misread the question and wrote about the benefits of living near volcanoes instead of focusing on earthquakes.

- (b)(i) Candidates who had revised thoroughly were able to score full marks. A common error was confusing the epicentre with the focus. Others guessed wildly with answers such as the Earth's core, crust or plate boundaries.
- (ii) A familiar question which discriminated very well. It was well answered by many candidates, with some high quality answers seen, which referred to a range of appropriate ideas which were developed. Weaker candidates tended to include a limited number of valid points. Some answers were too vague, referring only to 'resources', 'infrastructure' or 'earthquake prediction'. Some incorrect responses also suggested that people could be warned and evacuated before an earthquake, which is not possible, although recent advancements in seismology do now enable warnings to be given in some MEDCs seconds before an earthquake occurs. Some answers referred to population density in an attempt to explain the variation, however areas of high population density can be found in both LEDCs and MEDCs.
- (c) Candidates generally named appropriate rivers, either textbook examples such as the Ganges, Thames, Nile, Elbe and Mississippi or named rivers in their own country. The question discriminated well. Low scoring responses consisted entirely of simple statements, some which referred only to heavy rainfall. Stronger candidates developed or linked several reasons to explain how they increase river discharge and lead to flooding. For example, 'deforestation reduces interception and decreases water uptake by roots, leading to greater volumes of water reaching the river'. Some high quality answers incorporated place specific detail, however the lack of such references in many otherwise impressive answers prevented them from scoring full marks. As with other case studies some candidates included irrelevant information, particularly about the effects of flooding, in some cases only briefly mentioning its causes.

Question 5

- (a)(i) This was generally well answered. The majority of candidates correctly identified a distance falling within the accepted range of 50 – 58 km. Only a very small minority submitted values just outside this range such as 48 km or 60 km. Outliers significantly beyond the range were rare and appeared to reflect fundamental misreading of the map scale.
- (ii) Performance was notably weaker here. The task required candidates to describe the island's location and credit was awarded for using direction and/or distance from clearly named location(s) on the map extract. A substantial proportion of responses were vague, including phrases such as 'between two islands', 'in the centre of the map', 'above an island', 'surrounded by islands', or 'close to/near an island'. Even amongst those who realised the importance of using direction and distance when describing a location, frequent errors occurred, such as inaccurate use of the scale or reversal of directions. Basic map skills such as this should not cause problems for candidates at this level.
- (iii) This proved to be challenging for many candidates, the typical score being one or two, with a significant minority getting zero. Responses referring to 'beautiful scenery' and 'relaxing/peaceful/calm' atmosphere were the most common correct responses. Many other responses were too vague, for example 'no pollution', 'clean', 'natural' and 'not damaged by humans'.
- (b)(i) This was well answered. Almost all candidates identified at least one credit-worthy environmental impact, with the four principal forms of pollution, noise, air, land, and water, each earning individual credit when stated. Many extended their answers to include deforestation, linked explicitly to hotel/accommodation construction. A smaller number developed the idea further by referencing loss of habitats or loss of biodiversity. Only a few responses included irrelevant discussion of impacts on people such as traffic congestion or rising cost of living.
- (ii) This discriminated well. Almost all candidates gained marks, typically for 'littering or land pollution' and for 'noise', their negative impacts on people living in the area being self-explanatory. However, many did not score marks for simple references to air or water pollution as these needed to be

appropriately contextualised in relation to their consequences for people. For example, 'air pollution from vehicle exhausts causes respiratory problems/asthma or 'water pollution reduces fish stocks for consumption by local people'. Similarly, ideas such as overcrowding, loss of land, spread of disease and crime lacked the required specificity or relevance and were not credited.

More sophisticated answers demonstrated awareness of socio-cultural and economic disbenefits, including loss of privacy for residents, cultural dilution/commercialisation, inflationary pressure on local goods and services, and the instability of seasonal employment.

- (iii) This question also discriminated well and provided the opportunity for perceptive candidates to suggest a range of plausible strategies. High quality answers referred to several management strategies using developed ideas, typically including limiting visitor numbers, educating tourists about environmental responsibility, installing specific anti-litter signage, providing adequate waste bins, or imposing fines for littering. Weaker responses made fewer points, often at a level which was too extreme or simplistic, such as 'put up signs' and 'fine people for breaking rules'.
- (c) Many examples were seen, common ones being the Victoria Falls, Jamaica, Zanzibar and The Maldives. As expected, this case study discriminated well, with many candidates reaching Level 2. Weaker responses typically made a number of simple statements to achieve Level 1. Many of the ideas included were not related specifically to the place stated but generic. A few however achieved full marks by also including place detail. The most common ideas were 'tourism creating jobs', 'local people selling their wares as souvenirs', 'tourism boosting the economy/earning foreign currency' and 'the creation of better roads and airports'. Some of these ideas were developed through the use of examples such as 'tourism jobs such as boat drivers and tour guides'. As in many other questions the term 'infrastructure' was used by many candidates to mean anything from roads to buildings of any sort and was often used in too vague a manner for credit.

Question 6

- (a) (i) Most candidates answered this correctly.
 - (ii) The majority answered this well, often with reference to Grand Port Bay, a named relevant coastal settlement, or by reference to the coast, some using distance and direction accurately. Common errors were vague references to the Indian Ocean or North of the map, which some wrongly referred to as the north of Mauritius.
 - (iii) This discriminated effectively with good answers making clear reference to likely problems being faced by the people, including economic impacts such as loss of tourist trade and reduced catches for fishermen, or other impacts such as being unable to swim/relax on the beaches and ships being unable to travel into and out of ports. Weaker responses gave vague responses with little clarity in terms of how the people will have been affected. Vague statements such as 'water pollution,' and 'kills the fish' needed elaboration for credit. Many candidates use the phrase 'it affects.....' in questions such as this, which is never credit worthy unless they explain what those effects are. In this case how the oil spill affected the people. For example, 'It affects the fishermen' cannot be credited but 'it affects fishermen by reducing their income' can. A common error was to refer to drinking water being polluted. Whilst the oil may affect desalination plants, people will not directly drink seawater.
 - (iv) The majority of candidates were able to score on this question, often by reference to fish/coral being killed or habitats being destroyed, though many of the ideas were somewhat repetitive. Stronger candidates developed their ideas with full explanations, for example referencing issues such as the loss of sunlight/oxygen or the impact on food chains. An error made by a significant minority of candidates was to write in detail about coral bleaching instead of focusing on the question.
- (b) (i) This was well answered, with many good comparisons of North America and South East Asia. Some lost marks by writing about only one area rather than comparing, whilst others compared two completely different parts of the world in error.
 - (ii) Whilst there were some high quality answers, many candidates did not perform well on this question. Some did little more than make simple statements describing the difference in domestic

use of water rather than explaining it. Others wrote generally about variation in water use, rather than focusing on domestic use. Better responses typically referred to variation in the water supply infrastructure, especially piped water to households, and the use of devices such as washing machines and showers using large amounts of water.

- (c) Many different case studies were well used with Singapore, Lesotho and Zimbabwe being popular choices. The question discriminated well. Low scoring responses consisted entirely of simple statements, often in lists of bullet points such as the use of rivers, dams and wells. Higher scoring answers were developed or included linked ideas such as ‘water is collected in reservoirs where it is stored before being piped to treatments plants before being distributed to households’. Some high quality answers incorporated place specific detail, such as the names of rivers or dams, which raised their responses to Level 2, providing sufficient detail had been included within the answer.

GEOGRAPHY

Paper 2217/22 Geographical Skills
--

Key messages

- Candidates approached this paper positively and many of the best answers were succinct. Candidates should plan their longer written answers to elicit more focused responses. For example, in **Question 3(b)** statements should focus solely on links between building material and the part of the house they are used for.
- Candidates should make sure they read the whole question carefully. For instance, in **Question 1(e)** some candidates ticked multiple boxes on one line despite the instruction 'Use only one tick for each row'. **Question 5(a)(ii)** requires a description of the decline in rainforest from **Figure 5.1** and not rainfall as done by some candidates.
- Whilst candidate performance in **Question 1** which tests mapwork skills, has shown improvement, more practice on distance calculations, and compass bearings would benefit some. Many answers in **Question 1(c)(ii)** and **(iii)** were just outside the tolerance, so candidates should be advised that it is worth double checking their answers to ensure accuracy.
- Candidates should be reminded that when describing locations or the situation of a place from a map e.g. **Figure 4.1**, they need to use named features such as cities or oceans as well as directions and distances. For example, in **Question 4(a)(i)** when describing the location of Mt St Helens, instead of 'near the ocean', candidates should have stated, 'near the Pacific Ocean'. Similarly, instead of 'near Seattle', 'South of Seattle' or '150 km from Seattle' is more specific.
- Candidates should study the key words in each question carefully. For example, in **Question 1(g)** they are asked to compare relief and shape of two locations. Some candidates only described one location and others referred to human features rather than relief and shape.
- Candidates should try to avoid vague terms. For example, in **Question 4(c)** some candidates should state 'roads were flooded' rather than refer to 'transport links' or 'infrastructure'. In **Question 6(c)** they should ensure that the type of pollution is specified not just use the word pollution on its own.
- Candidates should be able to use correct terminology when identifying features for example, in **Question 6(b)** many candidates referred to hydro-power rather than hydro-electric power. In **Question 4(a)(ii)** they should be able to distinguish clearly between constructive and convergent plate boundaries. Candidates should know the names of different types of graphs, for instance many could name the pictogram in **Question 2(a)(i)**
- Candidates should fully erase or crossed out answers which are not required, for instance extra ticks in the tables for **Questions 1(b), 1(e), 2(a)(ii) and 2(b)**.
- If candidates run out of space and write on the additional pages, they should make sure that their answers have the question number and part written accurately.

General comments

The paper was answered well with many candidates attaining a high level. A wide range of marks were seen and some excellent answers to all questions. All candidates demonstrated some geographical knowledge and understanding. Most made good use of geographical terminology and demonstrated their geographical skills in interpreting maps, graphs and photographs. The standard of mapwork skills continues to improve.

Generally, candidates performed equally well across all the questions. **Question 1(a), 2(b), 4(b) and 5(a)(iii)** were answered particularly well. However, parts of **Question 6** provided more challenge. Most candidates made good use of the examination time and completed the paper.

Whilst good use was made of English to convey geographical ideas, a minority of candidates' handwriting could have been neater.

Comments on specific questions

Question 1

- (a) Candidates were able to find features on the map from **Figure 1.1** and identify them using the key with ease, and therefore, scored well on this question. Feature **A** was either a lake (as in the key) or reservoir (stated on the map). The type of road at **B** was a third class road, which many recognised as being under construction. The land-use at **C** was natural woodland, but some candidates mistook it for mixed woodland or stated Muck Rock. The height above sea level of the triangulation pillar at **D** was 171 metres.
- (b) **Part (b)** was answered well with most candidates clearly able to choose the correct grid reference for the viewpoint at **E** on **Figure 1.1**. from the four choices. They found this an easier task than having to give the six-figure grid reference themselves.
- (c) There were many candidates who demonstrated that they had clearly practiced the skills needed to answer **part (c)** but some still require more support, especially with measuring distance in (ii). In (i) the compass direction from Killester station to Donaghmede station was North-east. In (ii) the distance between the two stations was 5400 m. Owing to the smaller scale of the map (1 to 50 000 instead of 1 to 25 000), a tolerance of 200 metres was allowed. In (iii) the compass bearing between the two stations was 48°, with a tolerance of 46 to 49°.
- (d) Since **part (d)** was based on part of the urban area of a large city, Dublin, the candidates had plenty to choose from when selecting three leisure facilities in the area west of easting 19 and south of northing 38, with boating activities, golf course, trailhead and nature reserve being the most common. Many scored the full 3 marks, but there was some confusion regarding what constitutes a leisure facility. Consequently, some gave answers such as, school or police station. Some looked at the wrong section of the map, especially to the North and gave amenities which were not in the designated area. Candidates must look at the key in conjunction with the map, since copying just from the key led to some incorrect answers, such as picnic site or viewpoint.
- (e) This question was answered well, with most candidates able to locate the two areas shown in **Figures 1.2** and **1.3** for comparison of their features. Many scored 4 or 3 marks by placing ticks in the correct boxes and demonstrated good map reading skills. The most common error was to place the motorway and or the youth hostel in the 'neither of these areas' column. Some candidates put more than one tick per row and lost marks since it was clearly stated in the question stem that only one tick per row was required.
- (f) Many candidates scored the mark for noting that the site of the power station in grid square 2023, was away from residential areas. However, those that said it was close to water either missed out stating why this made it a good site or referred to the generation of power by HEP. Careful study of the key would have shown that it was a fossil fuel power station. However, the advantage of being next to the sea to receive fossil fuels or as a source for water for cooling would have been credited. Few noted the relatively large site or the fact that it was flat.
- (g) Although many valid comparisons of the relief and shape of North Bull Island with the land east of easting 26 were seen, few answers gave more than two. For the relief many contrasted the flat nature of North Bull Island with the steeper land east of easting 26. Others suggested that the latter was higher and some gave the highest points of each area, 4 m v 171 m. For shape, many stated correctly that North Bull Island was longer, and others said that it was smaller. Elongated or thinner for North bull Island was often compared with circular or wider for the area east of easting 26. The frequent use of 'mountains' instead of 'hills' showed a lack of understanding of the scale of geographical features. The most frequent error seen was to describe human features such as roads, land-use, settlement, and golf courses. Weaker responses often described only one of the areas, and for some others it was difficult to ascertain which area was being referred to.

Question 2

- (a) (i) **Figure 2.1** is a pictogram or pictograph. This was not universally well known. Many hoped that **Question 2(a)(ii)** would help them, so wrote 'population density graph'. Other incorrect responses seen were tally graph, and bar graph. Quite a few candidates gave no response.
- (ii) In most cases, **Figure. 2.1** was successfully interpreted by candidates as showing population density and not population size or structure.
- (iii) Similarly, most candidates correctly calculated that **Figure 2.1** showed that 255 people per square kilometre lived in the Philippines in the year 2000. A few incorrectly added a decimal point and so stated 25.5 people per square kilometre.
- (b) Most candidates accurately interpreted **Figure 2.2**, which showed the population distribution in the Philippines, by selecting the three correct statements from **Table 2.1**. These were that the population distribution varied throughout the Philippines, the highest population density was in central areas, and the lowest population density was in western areas. The most common error was to suggest that all parts of the Philippines are densely populated.
- (c) Most candidates were able to make creditworthy statements to describe the relationship between population and relief in the Philippines. Some noted that the relationship was an inverse one. Most correct answers however, identified high relief having a low density of population and areas with low relief having a high population density. The data obtained from the key in **Figures 2.2 and 2.3** was used equally as much as the qualitative statements. However, some candidates using data tended to get more mixed up, for instance leaving out the < and > before the heights or using relief figures for density. Some responses incorrectly described the relationship between population density and gradient which was not shown on **Figure 2.3**.

Question 3

- (a) **Figure 3.1** was generally interpreted well with the majority identifying the country with the largest circle and therefore the largest urban population as Nigeria in part (a)(i). Similarly in part (ii), the country with the largest proportion of its circle shaded in orange thus, having the largest share of its urban settlement living in squatter settlements, was Sierra Leone. The responses to part (iii) were varied in quality. Advantages usually stated that it was easy to read, understand or to compare countries. Some better responses referred to how it could show a relatively large amount of information or commented on its visually clarity. The main disadvantages were either the lack of numerical data, making it difficult to read off exact figures, and that some pie charts were too small. Some candidates appeared unfamiliar with being asked to comment on a data presentation method and their answers were either too vague, for instance 'It is inaccurate', or they contradicted themselves across the two parts of the answer. Some responses did not address the question, for example stated there was not enough information about the countries or cities or referred to the ease of drawing pie charts.
- (b) (i) This question was answered well with many candidates able to link the material to the relevant building part seen in **Figure 3.2**, a photograph of a squatter settlement in Columbia. A wide range of building material was identified. Many referred to the metal roofs, variously described as sheets or as corrugated, and composed of zinc, tin or steel. Asbestos and plastic sheets were also appropriate for the roofs. Glass for windows and wood for doors or building supports also gained credit regularly. Bricks were often mentioned but were not credited unless they referred specifically to the walls of the houses. Weaker responses tended to list the types of materials but did not say how they were used. Some tried to explain why the materials were used, for instance 'metal to keep the rain out', having not read the command word correctly. Parts of the houses which could not be seen in **Figure 3.2** were not credited, for instance 'concrete was used for foundations'.
- (ii) Candidates had few problems in answering this question. Reference was made to building in storeys or more commonly 'building houses on top of each other'. Other common and correct responses referred to wooden or concrete supports such as pillars or poles, or the use of stairs. More vague responses which were not creditworthy mentioned building along or across a slope or building houses next to each other for support.

Question 4

- (a) (i) This question proved difficult for many candidates. Many mentioned, fold mountains, other volcanoes, settlements, and the plates from **Figure 4.1** but without sufficient precision for credit. For instance, 'in fold mountains' should have referred to 'the Cascade Range', and 'between plates' was better stated as 'near the boundary of the Juan de Fuca and North American Plates'. 'Between Mt Hood and Mt Rainier' was creditworthy but any reference to Seattle often lacked either how far it was from Mt St Helens, which could be calculated from the scale on the map, or that it was 'South of Seattle'.
- (ii) Candidates in general did much better on this part of the question. Many recognised that this was a destructive or convergent plate boundary. Some interpreted the creation of fold mountains however, as a constructive plate boundary. Most stated that the plates were moving past each other, which was clear from **Figure 4.1**. Some better responses added that the Juan de Fuca Plate being heavier, was subducted underneath the North American Plate.
- (b) Many candidates scored well on this question since there were a lot of impacts on the human environment to choose from on **Figure 4.2**, such as the destruction of forests, fish farms, settlements, and apple orchards. Some focused on transport and stated that 'road and rail bridges were washed away' and that 'barge transport had been halted'. It was expected that impacts not stated on **Figure 4.2** required a link to this resource for instance, 'Water supply was disrupted due to mudflows and ash'. Some referred to the impact of lava, for which there was no evidence on the resource, and therefore could not be credited. A few weaker responses gave rather vague statements such as 'roads were affected' instead of stating how they were affected, for instance by being destroyed, blocked or flooded.

Question 5

- (a) In part (i) most candidates were able to use **Figure 5.1** to correctly state the amount of tropical rainforest in 1985 as 386 or 387 mha. In part (ii), many scored a mark for recognising the overall decline in the tropical rainforest from 1985 to 2018. A second general mark could be scored for reference to the fact that any fluctuations were small or that there were only a few. Where the graph was broken up into sections, then appropriate dates were expected. For instance, 'Between 1985 and 2009 there was a steep decline but from 2013 to 2018 there was a more gradual decline'. Such statements were often inaccurate, although some candidates did recognise that the amount of rainforest had increased from 1989 to 1990 and was constant between 2009 and 2013. A frequently seen error was to discuss rainfall and not rainforest, suggesting these candidates had not read the question carefully. Part (iii) was done well, with most candidates able to show the calculations of a simple subtraction exercise, to arrive at a total of 709 165 square kilometres of rainforest lost between 1970 and 2018. A very small minority omitted to include the minus sign in their workings.
- (b) (i) A wide variety of answers were seen here, with most candidates achieving at least one mark. Many stated both arable and pastoral farming for the two marks. There was also frequent reference to commercial farming. Surprisingly, few mentioned plantation farming or gave examples of actual crops, although oil palms and rice cultivation were seen. Others referred to subsistence or shifting cultivation.
- (ii) This question was done well with most candidates referring to loss of habitat, soil erosion or a reduction in biodiversity. There was also some mention of drought or desertification, while a few others suggested flooding. Some candidates stated global impacts such as an increase in carbon dioxide levels or global warming. These were not credited since the question specifically referred to the local natural environment.

Question 6

- (a) Most candidates were able to define a non-renewable resource. The best answers were those that were relatively simple, for example 'It is a resource that cannot be used again' or 'It is a resource which is finite'. Some candidates made their response too complex, for instance, referring to the potential of the resource being formed in the future, which was not credited.
- (b) Many candidates failed to identify the type of renewable energy sources in **Figures 6.1 and 6.2**. The complete terms were expected i.e. hydro-electric power (HEP) and geothermal power respectively. Therefore, hydro-power and thermal power, both of which appeared numerous times,

were not creditworthy. HEP was correctly identified more, but quite a few referred to **Figure 6.2** as nuclear or solar power. Vague terms such as 'water' and 'steam' were also seen.

- (c) (i) This question was well answered with most candidates opting for a bar graph and some, a pie chart, to show the data in **Table 6.1**. The most common errors were suggesting a line-graph or a histogram.
- (ii) Many candidates found this question difficult. The best responses were those which were specific to solar power. The argument against was usually better presented than the one in favour. This was because the arguments in favour were far too generic, for instance 'it is renewable', 'it does no damage to the environment', or 'it causes no pollution'. Those who stated that it produces no carbon dioxide, or that it is a clean form of energy, or does not contribute to global warming got credit. Some candidates pointed out that solar power has low maintenance costs, is suitable for battery storage and is more reliable in countries with a high amount of sunlight during the day. These were all creditworthy. The against argument was often based on the high cost of installation or that some countries do not get enough sun to make it reliable. Unfortunately, some candidates spoilt their argument by assuming that in cloudy conditions solar power does not function, which is not the case, however it is less efficient. Some also stated that some countries do not have the large land requirement, or that this reduced land for other uses. The fact that solar farms can be visually intrusive was also valid.

GEOGRAPHY

Paper 2217/32 Geographical Investigations
--

Key messages

To perform well on this paper candidates should:

- When answering hypotheses 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'. Candidates should not just copy out the hypothesis – this was often seen on **Question 1(c)(ii)**. It is important for candidates to make a decision and then provide the data or evidence for their choice. Candidates should be clear in their decision – expressions such as 'might be true', 'could be false', 'true and false', 'generally true' are too vague.
- Note that if evidence is asked for, this can include numbers and descriptive statements. If the question says 'Support your decision with evidence from Fig. 2.5 and Table 2.2' as in **Question 2(d)(ii)** then at least one mark will be reserved for data use from those resources.
- When giving figures in an answer, always give the units if they are not stated for you, for example, in **Question 1(d)(iii)** 'The average morning wind speed = 1.5 m/s in the city centre and 1.1 m/s in the rural-urban fringe'.
- When shading or completing graphs, use the same style as that provided in the question and use a sharp pencil to give a good dark image. Candidates should also check that they understand the scales used and the importance of any plots provided. If adding plots to a graph, use the same style as the plots already on the graph for example on **Question 1(c)(i)** the two plots should be a cross and a black dot like the others already in place and in the key.
- When completing bar or pie graphs, make sure their shading matches the key.
- Use the exact figures from the table rather than make erroneous judgements from the graph if they need to refer to data from a table or graph. Try to avoid words such as 'almost' 'nearly' or 'approximately' and choose a precise number. For example, in **Question 2(d)(ii)** Table 2.2 should be used for accurate percentages using different medical services rather than estimating from the pie graph.
- When they think they have finished, go back and check that all questions and graphs have been completed. The following graph questions were frequently missed out/not completed: **Question 1(c)(i)**, **Question 1(d)(ii)**, **Question 2(c)(i)**, **Question 2(d)(i)** and **Question 2(e)**.
- Read questions carefully and identify the command word e.g. describe or explain. Question that asks 'Why?' require a reason to be given, not a description.
- Check that they are using the resources that a question refers to.
- 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% of the statistics being described and is not a term that will be accepted if the data involved is less than 50%.
- Take into account the marks awarded as an indication of how much to write for each answer.
- If they need to continue beyond the answer lines provided for the question, use the additional pages provided and clearly number the question that is continued on the additional pages.
- Ensure they have the correct equipment for the examination. In this case, a protractor, calculator and a ruler. Some responses included freehand bar graphs for **Question 1(d)(ii)** and **Question 2(e)(i)** which were not accurate. It is also best to draw plots or complete graphs in pencil – sharp pencil provide more accurate plots.

General comments

Most points to consider when candidates are preparing candidates for this Paper relate to the misunderstanding of command words and 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 related to them not fully reading the question or completely missing out graph completion tasks.

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 beneficial. 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 be taught in classrooms and questions on this topic are often not well-answered by candidates. Creating and using 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. Additionally, measuring temperatures and wind speeds is an example of fieldwork methods that could be carried out within most school grounds.

Comments on specific questions

Question 1

Question 1 focused on fieldwork involving different temperatures and wind speeds between the city centre and the rural-urban fringe of Shanghai, China. Candidates needed to understand the advantages of using a digital thermometer as well as the use of anemometers and wind vanes and how and why selected weather characteristics varied between the two different areas. To test practical skills, they needed to make choices from tables as well as complete a scatter graph and a horizontal bar graph. There were also photographs to interpret. Candidates were asked to make judgements about two hypotheses and then to justify those decisions with evidence.

- (a) The definition of the rural-urban fringe involved two points – that it was on the edge or outskirts of a city and that it was the area between the urban and rural land-uses. Most candidates gained one or two marks here; the majority for knowing it was the area or zone of transition between cities or towns and the countryside. A few described in detail the possible land-uses such as farmland and housing which was not a definition so not credited. Use of the term ‘urbanisation’ was seen but this was not the correct context, as urbanisation describes the movement of people into a city. Some thought the rural-urban fringe was the area around the city centre or CBD which was incorrect; others wrote that the rural area was expanding into the urban area.
- (b)(i) Most candidates answered this question well. The most common advantages given were that the digital thermometer was accurate/precise and that it was quick and easy to use or read. Other acceptable answers included that it could measure in Centigrade or Fahrenheit, that it was portable, and that the results were displayed clearly on the screen. A common response that was not credited was that there would be no reading errors; whilst there should be less errors than a traditional thermometer, reading errors can still be made. A few candidates compared this instrument with a traditional thermometer stating the disadvantages of the latter; this was not required in the question and was not credited.
- (ii) In responses to this question, it was not enough to suggest that the candidate should just take more measurements or repeat the investigation as neither of those ideas would make the results more accurate/enable the students to check their measurements were correct. Stronger responses suggested taking more measurements and comparing results in working out an average. Other suggestions included getting other students to take measurements for comparative purposes and taking measurements with a traditional – or another digital – thermometer for comparison.
- (c)(i) Most candidates plotted both points accurately; in a small number of cases the cross and dot were plotted in reverse order. Common errors seen included plotting the points above the woodland area in the urban-rural fringe instead of above the woodland area in urban park in the city centre. There was also incorrect plotting due to inaccurate reading of the scales; a few candidates plotted the morning temperature at 18 °C instead of 18.5 °C. A minority of candidates did not attempt the graph completion.
- (ii) This question was answered well with almost all candidates stating that they thought the hypothesis was ‘True’ and then providing appropriate comparative data for either the maximum temperature or the average temperatures which showed that the city centre had the higher temperatures than the rural-urban fringe. Many candidates gained three marks here; the fourth

mark was for recognising and stating that the temperatures were higher in the morning **and** the afternoon which the paired data revealed. Candidates who judged the hypothesis 'Partly True' often gained credit for the correct comparative data.

- (iii) This question was generally not well-answered. Many candidates just listed factors that might affect temperature such as too many vehicles, air pollution, trees, vegetation and buildings. Very few went on to say how these factors might make the temperatures vary between the city centre and the rural-urban fringe. Many referred to the altitude, the greenhouse effect, climate change, global warming and cloud cover, none of which would specifically cause differences in and around a city.
- (d)(i) The vast majority of candidates knew that the anemometer was used to measure wind speed. The most common incorrect answer was a barometer.
- (ii) The graph completion was well done by most, though a few misread the scale plotting inaccurately at 1.95. It should be noted that bar should have been drawn where the two guidelines were placed next to the 'footbridge over main road' label. A few candidates drew their bar in the gap between the city centre and the rural-urban fringe axis labels. A number of candidates did not attempt this question.
 - (iii) Most candidates made the correct choice of the hypothesis being 'Partly True'. Stronger responses then recognised that the city centre had a higher average wind speed than the rural-urban-fringe in both the morning and also in the afternoon. This was then backed up with paired data to illustrate this statement. Some candidates justified their decision by using the highest wind speeds or individual site wind speeds instead of the average wind speed stated in the hypothesis.
 - (iv) Most candidates correctly identified lines of trees and woodland and the gaps between high buildings as two factors that affect wind speeds in an urban area. Quite a few responses only placed one tick in the table when the question asked for two choices.
- (e) Overall, most candidates recognised that the wind vane was being held up in the air above head height and that the person was standing in an open space away from obstructions such as trees and buildings, which gained two marks. Very few commented that the wind vane was aligned to the compass directions and that the arrow was moved by the wind. Many wrote that the wind vane pointed to the direction where the wind was coming or going to; it was necessary to be accurate here and state that it was the arrow pointing to where the wind was coming from. Few candidates demonstrated knowledge that the arrow pointed to where the wind was coming from rather than going to. Stating 'it shows the wind direction' was too vague.
- (f) (i) This question was answered well, as most candidates made sensible suggestions regarding the use of the measuring equipment at school prior to any fieldwork. These included making sure that the wind vane and thermometer were working properly and would give accurate results so there would be less mistakes and also that they could practise using the equipment and familiarise themselves with how it would be used.
- (ii) Overall, responses to this question were mixed. Stronger responses included the idea that, by checking the temperature over a year, they would be able to compare the current readings and identify changes and trends over twelve months or see the influence of seasons where relevant. Many thought calculating an annual average of temperature or of wind speeds would help to make their results reliable as the question asked.
 - (iii) This question was generally not well answered. Some stronger responses identified that there were some sites that may produce anomalous results, such as the woodland area in an urban park and the main road in front of the school, as they were not typical land uses to represent the two areas and consequently could be made more reliable by changing the sites to more typical ones that would be found in the two areas. Others answered incorrectly or did not provide an answer to this question.

Question 2

Question 2 focused on investigating health issues in two different residential areas of Mumbai, India. They were expected to know, using photo prompts, the conditions which encouraged various diseases to thrive, how to sample people's views using a questionnaire, and how to analyse comparable evidence about which diseases were encountered in each settlement and where they went for treatment. They were also required to describe how they would investigate housing conditions in the areas, as well as complete a bar graph, a pie graph and a horizontal divided bar graph. They also had to make judgements from evidence regarding two hypotheses.

- (a) This question asked candidates to suggest likely risks to the health of people living in a squatter settlement shown in a photograph. This was well answered by most candidates, although a significant number focused exclusively on water-borne diseases when many other risks could have been suggested, e.g. crowded/congested housing, poor sanitation, unsafe housing and litter attracting vermin. Candidates should therefore ensure, when asked to give multiple ideas or suggestions, that each of the ideas they present are distinctly different. Some responses included ideas which the photo could not suggest such as the lack of doctors or air pollution.
- (b) (i) This question was generally not answered well. Very few candidates demonstrated an understanding of why sampling was necessary and provided answers such as that it would be impossible to ask everybody, or that it would save time. Most responses described the information that the sample would give about the diseases and treatment facilities and that the comments could apply to all the people in the settlement.
- (ii) Most candidates knew the difference between 'primary' and 'secondary' data. Candidates should ensure that they focus on more specific definitions for these terms, rather than those that are vague and ambiguous e.g. *it is the data collected by candidates themselves*. Whilst this was credited for this question, this could also be a definition of secondary data.
- (iii) This question was generally not answered well. Stronger responses focused on the fact that the method was unreliable as it would create issues concerning representation from a very specific gender/age group to represent all the views of the people in the settlement. They also highlighted practical issues such as it would not always be mothers collecting their children; there could be others doing the pick-up. The key issue was that the sample was just one gender with a similar age/cohort with children thereby immediately making it unrepresentative and likely to produce similar answers to questions. Weaker responses did not focus on the suitability of the sample chosen as being a problem and gave generic issues such as that those answering the questionnaire might lie, there would be language barriers, they may not be literate, or they might not be interested – none of which were relevant to the issue of the sample chosen.
- (iv) There are three sampling methods that could have been used to answer the question – random, systematic and stratified. Candidates were asked to do three things – name the method, describe it, and explain why it would be reliable. Random and systematic sampling were the most popular choices. For random sampling, responses often suggested 'asking anyone' or 'using random number tables/generators' to pick the sample; weaker responses repeated the word 'random' or 'randomly' in their description. Systematic was usually answered more successfully. A few gave stratified as a method but rarely described it as using age/gender to pick the sample. Most candidates knew that all would ensure there was no bias. Incorrect sampling methods listed included questionnaires, door-to-door interviews and quadrat sampling.
- (c) (i) Most candidates plotted the bar correctly. However, some incorrect plots were seen at 38, 46 and 58; candidates should ensure they check the scale of the graph accurately. A small minority did not attempt the graph completion.
- (ii) This question was well answered, with most candidates correctly judging that the hypothesis was 'True' and that more people suffered from diseases in the squatter settlement than the area of permanent housing with disease names used to illustrate this. A few agreed that, while overall it was 'True', two of the six diseases (malaria and diabetes) were higher in the permanent settlement. Many correctly quoted the total numbers suffering as 259 (squatters) to 161 (permanent housing) to support their 'True' judgement. Weaker responses focused on the differences between individual diseases rather than seeing the overall picture.

- (d) (i) There were quite a few errors in plotting the pie graph and a number of candidates did not attempt to answer this question. The most common errors were plotting the line by going the wrong way round on the graph (anticlockwise) unlike the one provided, or plotting the line at 21% clockwise from 0% instead of taking into account the already plotted 5% and plotting a correct line at 26%. Almost all candidates shaded the slices with the correct style but there were a few seen that shaded the diagonal in a different direction; shading was not always complete.
- (ii) Despite being told to support the hypothesis decision that it was 'False', a few responses focused on supporting that the hypothesis was 'True'. The majority, however, concluded that 69% of people in the squatter settlement and 74% of people in permanent housing areas used private/non-governmental facilities. This gained two marks for the correct use of data. A few responses included the correct figures but did not say which settlement they referred to or did not mention that most people in both squatter settlements and permanent housing used private/non-government facilities. Some answered from the point of view that a low percentage did use the government health care facilities; if this approach was taken the relative word 'only' was needed; 'only 25 per cent' (people in squatter settlements) and/or 'only 21 per cent' (people in permanent housing area) instead of just stating the figures for the marks.
- (e) (i) There were quite a few plots at 85%, 88% and 97% instead of 87% and 98%; both needed accurate plotting for the plot mark. Almost all responses gained a shading mark by using the correct sequence from left to right. This graph completion was the most common of all the graph questions to not be completed/missed out.
- (ii) Stronger responses to this question investigated the data in Table 2.3, the answers given by the people in the two areas, and made comparative statements about the differences in the reasons chosen not to use the government health facilities. Judgements such as 'more people in squatter settlements say that long distance travel is a reason' or 'more people in the permanent housing area thought long waiting times was a reason' were excellent answers. A few responses did not state differences and just listed reasons separately. A common error was to misread the question Table 2.3 presents the answers to and state that people in squatter settlements travel further to the facility, which is not true.
- (f) This question was well answered. There were many suggestions as to how the health of residents could be improved which included building new hospitals/clinics closer to the poor areas, employing and training more doctors and nurses in these areas, providing vaccines, medicines and inoculations, and education about health and good hygiene. Improving the sanitation, sewage disposal and providing clean water were also popular ideas. A few candidates took a wider view that did not improve health directly, such as improving the food supply, providing more work, and building better housing alongside unrealistic possibilities such as weekly check-ups for all, or moving people out of the areas to make it less crowded.
- (g) The majority of answers to this question were quite general and vague. A mark relating to good fieldwork practice such as working in pairs or groups, recording the results, and visiting the areas was credited and most candidates gained a mark for this. A few responses suggested creating a hypothesis to test but did not then go on to suggest a hypothesis. The stronger responses suggested a bi-polar survey, including suggestions of categories to judge and score on such as housing materials, structures etc. Practical ideas such as taking photographs, getting a map or interviewing people were stated in some responses but these ideas were rarely developed e.g. by stating what the photos would be of or what questions they would ask people. Those that suggested more detail, perceived housing conditions as including the supply of water and electricity from outside and also what facilities were inside the houses. Many suggested going into the houses to assess or interviewing government officials – two ideas unlikely to be realised. Some candidates left this question blank.