

GEOGRAPHY

Paper 2217/11

Paper 11

Key messages

The following items of general advice, which have been provided previously in this report, need to be given to future candidates who should:

- make the choice of questions with care, ensuring that for each question they choose they have a named case study about which they can write in detail and with confidence.
- answer the three chosen questions in order, starting with the one with which they are the most confident, and finishing with the one with which they are least confident (in case they run out of time).
- read the entire question first before answering any part, in order to decide which section requires which information to avoid repetition of answers.
- highlight the command words and possibly other key words so that answers are always relevant to the question.
- use the mark allocations in brackets as a guide to the amount of detail or number of responses required, not devoting too much time to those questions worth few marks, but ensuring that those worth more marks are answered in sufficient detail.
- consider carefully their answers to the case studies and ensure that the focus of each response is correct, rather than including all facts about the chosen topic or area, developing each point fully rather than writing extensive lists of simple, basic points. It is better to fully develop three ideas rather than write extensive lists consisting of numerous simple points.
- study the resources such as maps, photographs, graphs, diagrams and extracts carefully, using appropriate facts and statistics derived from resources to back up an answer and interpreting them by making appropriate comments, rather than just copying parts of them.

This was the first year in which candidates used a question and answer booklet to write their answer. As this will be the format used in future it is important that candidates are made aware that they should:

- write all their answers in the spaces provided in the booklet and not use additional sheets unless it is absolutely necessary.
- write only on the lines provided, not underneath the final line or elsewhere on the page (e.g. in any area of unused space at the bottom of a page).
- continue any answers which they do not have space for on the lined page(s) at the back of the booklet. If they do this they must indicate that they have done this (e.g. by writing 'continued on Page XX') and carefully write the number of the question at the beginning of the extra part of their answer.

General Comments:

This was the first year in which candidates used a question and answer booklet to write their answers. This format was well received and in the vast majority of cases candidates made effective use of the space provided. Some candidates required space on the extra lined page which was provided for their use and a few used loose sheets of lined paper. There were a few candidates who wrote all their answers on separate paper rather than in the booklet. This was clearly the fault of the invigilators/Supervisors rather than the candidates so the work was marked and candidates were not penalised.

The examination was considered appropriate for the ability range of candidates and a high Level of differentiation was achieved throughout. Many excellent responses to all questions (whichever were opted for) were seen and all candidates, including those who gained A*/A grades, were able to show their Level of ability. Structured questions referring to source materials provided all candidates with opportunities to gain marks, and particularly those worth fewer marks allowed all candidates to achieve positively. Inevitably there

were some candidates who for a variety of reasons performed poorly in the examination (e.g. lack of understanding or linguistic difficulties), however these were relatively few in number.

Many candidates attempted to use geographical terminology appropriately and confidently and were able to recall case studies in detail, particularly when they chose case studies local to them or from within their own country. Many candidates are able to give detailed Level 2 responses and to improve further they should try to also include place specific detail in order to achieve full Level 3 marks. Candidates who tend to list their responses in bullet point form or make simple, brief points are able to gain marks in the Level 1 range. In order to improve their performance they should try to develop each point which they make.

It has become apparent that some candidates are using case study answers, parts of which have been included in previous mark schemes to illustrate place specific details. Some candidates seem to be just learning and repeating the place specific phrases verbatim from the old mark schemes rather than showing their knowledge and understanding of the case study which the question asks for. Whilst reference to previous mark schemes by teachers in their teaching and revision is not a problem it must be remembered that these listed place specific ideas are simply a guide to Examiners. If the case studies are used with candidates the materials should be taught as with any case study and the place specific details (and others) included in context of the example being chosen. On no account should candidates be given a list of place specific phrases and be encouraged to learn them without developing any understanding of the case study.

The following detailed comments for specific questions will focus upon candidates' strengths and weaknesses and are intended to help Centres better prepare their candidates for future examinations.

Comments on specific questions:

Question 1:

This proved to be the most popular choice of question by candidates and was overall well answered.

- (a) (i) Most candidates were able to define 'densely populated', many using the information from the map key. Some candidates lost marks by not referring to a unit of area e.g. 'an area where many people live per square kilometre'.
- (ii) Predominantly a well answered question with candidates selecting appropriate areas such as: Europe, France, California, North East USA or Japan for **part A**. Examples chosen for **part B** included Indonesia, Eastern China, Japan, India and Singapore. There were some candidates who chose areas that were too big, therefore not all densely populated for example USA or China.
- (iii) Slightly more candidates wrote about deserts compared to the Arctic areas, however good answers were seen for both examples. Almost all candidates understood 'sparsely populated' and wrote relevant answers. Responses tended to focus upon lack of water in X and low temperature/snow or ice in Y, and difficulties of producing food in both; lack of easy access and lack of resources or employment' were well explained by many candidates too. Some candidates lost marks due to vague answers e.g. 'extreme', 'no vegetation' and many candidates made reference to 'hot temperature in the desert', which alone is not a valid reason to explain why the area is sparsely populated.
- (b) (i) This question was generally poorly answered by most candidates who made little real use of the photographic evidence provided. Many candidates wrote about 'dry or poor soils' despite the obvious presence of a large river. Those who observed the river and thought about it developed their answers around the possibility of a flood but few candidates included enough information or detail to gain more than one mark.
- (ii) Not all candidates read the question carefully enough to identify the key word as 'relief' therefore this led to many weak responses with many candidates gaining few marks. Their most common correct responses were 'difficult to build homes and/or roads, steep slopes or hilly'. The candidates who did identify the key to the question (i.e. relief) gained marks for ideas as outlined above plus 'low temperatures' or 'wet', and the 'possibility of mud or land slides'. Some candidates gave vague comments about the area being hard to grow crops (despite evidence of successful cultivation in the photograph) and 'hard to build' which needed appropriate comments linking with to relief in order to gain a mark.

- (iii) This question was much better answered. Many candidates were able to provide mark scheme points here, with some developing them well in order to gain full marks. Other candidates, whilst recognising key points, made brief statements that were not credited e.g. 'there is a river/water', candidates need to show their understanding by linking this with the theme of the question (i.e. a dense population). For example 'there is a river so people can get drinking water or water for irrigating their crops'. Many candidates gained marks for 'fertile soil so crop yield will be high, river is a source of food i.e. fish, water for domestic use, travel by river, use the river for HEP' etc.
- (c) Candidates gave answers relating to migration and growth but the question was, in general, poorly answered by many candidates who did not understand the term 'distribution'. There were some good responses referring to Brazil or the USA. Some candidates used Mexico as an example but those responses were usually weak, being largely descriptive and focusing upon where the main cities were. Some UK responses were also seen but they referred to a north south split in population with no real explanation. Candidates would generally have gained higher marks if they had used their own country for this case study. When candidates understood what they had to do they found it straightforward to gain the full 7 marks as answers were inevitably place specific and points made tended to be a blend of description and explanation, therefore writing 3 developed statements was not a problem. It was a pity that so many candidates did not fully understand the demands of the question.

Question 2

This question was the second most popular choice made by candidates and was overall not very well answered.

- (a) (i) It was apparent that not many candidates understood the term 'sphere of influence' as many candidates did not select the correct store i.e. 'General Store'.
- (ii) Most candidates gained 1 mark for comparing the statistics i.e. '56 people visit the large supermarket weekly compared to only 10 visiting the department store.' Not many candidates were able to show their understanding by referring to the 'greater frequency of visits to the supermarket as opposed to the department store', which was required in order to gain the second mark. Some candidates even compared visits to the general store with one of the other stores rather than those required by the question.
- (iii) Mostly simple generalised statements were seen in response to this question with very little geographical terminology used. For example 'you are more likely to buy bread and milk more often than clothes' which although gained a mark for the general idea is somewhat simplistic. Most candidates gained a mark also for the idea of 'people live close by to the general store and will therefore use it more often'. Candidates should be familiar with key terminology pertinent to this question from their lessons such as 'high/low cost items, high/low order services, specialist goods' but these responses were rarely seen.
- (iv) This question was generally well answered and most candidates understood what the question was asking thereby gaining marks most commonly for ideas such as 'easy access, cost of land is lower in rural-urban fringe compared to CBD and less traffic congestion'. Many candidates also tried to write about proximity to customers but this was often poorly expressed and/or explained e.g. 'near to rural areas where there are most customers' rather than 'proximity to urban area for large numbers of customers or customers can access the store from surrounding settlements'. Many candidates also referred to 'pleasant scenery' or 'close to suppliers', which did not gain credit.
- (b) (i) The majority of candidates gained a mark for this question with many gaining 2 marks but very few gained the full 3 marks. The first mark was gained for identifying that the 'higher the population the more shops there are' and the second mark was gained for providing a contrasting set of figures e.g. 'towns with 20 000 population has 150 shops whereas a town with 250 000 population has 1800 shops'. Many candidates tried to use one set of figures to illustrate the relationship, which was insufficient. Rarely did any candidate identify an anomaly in their answer to gain the third mark yet there are some obvious ones on the graph or they could simply have stated that 'the relationship is not exact or not a perfect correlation' to gain the final mark.

- (ii) This was well answered by many candidates with many gaining at least 1 or 2 marks mostly for; 'shops will be bigger in Y, there will be a wider variety of shops in Y, there will be shopping malls, shops will be selling more specialist items in Y'. Some weaker responses gave generalised statements such as 'better quality services, or more or less services', which gained no credit. It was rare to see any reference made to geographical ideas such as 'sphere of influence' or 'high order goods'. A few candidates also referred to Y as more likely to have pedestrianised areas and having more chain stores.
- (c) Understanding of this question appeared limited and this was not particularly well dealt with by candidates. Candidates did not understand the term 'hierarchy of settlements'. Many candidates wrote about services provided in the settlement or land use in cities and those who did write about the settlements themselves tended to do it at a very basic level, giving examples of settlements of different sizes. Very few showed their understanding of the concept of the settlement hierarchy by linking size of settlements with the frequency of them, which was what they needed to do in order to progress into Level 2. Many candidates gained Level 1 marks for correctly identifying hamlets, villages, towns or cities but rarely did any candidate go beyond this. In order to gain the Level 2 marks candidates needed to develop their ideas e.g. 'there are many more small villages than large cities, there is one large city which is the capital city'. In order to then go on and gain Level 3 marks they could then have named examples of such cities/towns/villages or areas/regions for example; 'there are more small villages, especially in rural areas like Norfolk compared with large cities' or 'there is only one capital city which is London'. Although these responses were rare there were a few case studies relating to Brazil or USA, which gained full marks.

Question 3

This question was probably joint fourth most popular choice by candidates and a wide variety of responses were seen.

- (a) (i) Most candidates correctly identified 'humidity'.
- (ii) A wide range of responses were seen here with some candidates correctly identifying 'Anemometer' and 'Barometer' and others unable to recall the relevant terms.
- (iii) The majority of candidates appeared to recognise that the minimum temperature needed to be subtracted from the maximum temperature thereby showing their understanding of the word 'range'. There was however much variation in candidates' ability to take an accurate reading from the thermometer picture. Most candidates were able to gain at least 1 mark for the use of correct formula with many gaining two marks for correctly identifying either the minimum temperature or the maximum temperature with less candidates gaining the full 3 marks.
- (iv) The majority of candidates understood the reasoning behind siting the anemometer on the roof and although not all candidates explained it clearly enough for maximum marks most gained at least 2 marks overall. Most common responses were; 'it is higher up, there's nothing in the way to block the wind, the playground will have buildings that will shelter it, it may get damaged in the playground'. Other less frequent responses included; 'the roof is not used for anything else, above trees and/or buildings'.
- (b) (i) This question was well answered in the main with the majority of candidates gaining full marks for 'white colour, slatted sides and on legs or raised above the ground'. However, there was some unusual phraseology used to describe the features, especially the slatted sides.
- (ii) The majority of candidates scored marks for referring to a 'position in open space/away from trees/buildings or in the middle of a field', which they explained effectively. Other ideas such as 'on grass not concrete and within a fenced compound' were surprisingly not well known and did not feature in many answers, so not many candidates scored the full 5 marks. Typical answers focused on being away from trees/walls/buildings and some were rather repetitive with their reasoning.
- (c) Some good answers were seen here as problems were generally well known. Some candidates used Caribbean examples and were clearly writing from experience, thus these answers were impressive. The Hurricane Katrina case study was also quite well used.

Candidates gained Level 1 marks for ideas such as; 'people killed, strong winds destroy houses, have no water to drink'. Level 2 responses included; 'people had to walk long distance to get clean water, damage to crops leads to lack of food'. To gain Level 3 candidates also needed to include place specific information like; 'local groundwater sources are flooded by the Ganges, housing destroyed by strong winds from the Bay of Bengal'.

Question 4

This question was generally well answered and was probably the joint fourth most popular choice by candidates.

- (a) (i) The vast majority of candidates correctly identified either 'January, February, March or April'.
- (ii) Many candidates gained the full 2 marks here for 'high temperatures/above 25 degrees/between 26 and 27 degrees and for low temperature range/no variation idea'. However, some candidates did not read the question properly and wrote about rainfall as well as temperature, which meant they usually gained only 1 mark as they did not refer to the low range/lack of seasonal variation.
- (iii) This question was generally quite well answered with the influence of high temperature, rainfall and sunlight being well understood. Few candidates made the point that the growing season was all year round. The majority of candidates gained at least 2 marks here.
- (iv) This question was also well answered by the majority of candidates with many gaining full marks. Marks were most commonly awarded for; 'huge variety of species, tall/high trees, little undergrowth, lianas, drip tips, buttress roots and emergents'. However, some candidates misunderstood the question and included lots of irrelevant detail about animals, birds and even indigenous tribes, which did not gain any credit.
- (b) (i) The majority of candidates gained at least 1 mark on this question with many gaining 2 or 3 marks providing that their answers were specific enough. 'Roads, ranching and timber extraction' were very common correct answers. There were however, too many vague responses like 'farming, wood and building', which showed very little knowledge. Candidates should try to develop these basic ideas more fully for example; 'to build settlements, commercial cultivation, industrial development'.
- (ii) This question differentiated well. Some excellent developed responses were seen making reference to the impacts on food chains, soil erosion and flooding. Most candidates could access at least 1 or 2 marks for simple suggestions, usually regarding animals being killed and/or habitats destroyed. Many candidates made reference to global issues and impacts on the atmosphere, which did not gain any credit as the question was asking about impacts on the natural environment of the tropical rainforest not people.
- (c) Most candidates were able to describe the characteristics of the climate gaining Level 1 marks for 'hot, dry, no clouds etc.' yet explanations were generally brief or non-existent. A few candidates gained Level 2 for referring to the high diurnal temperature range. Some candidates misunderstood the question and described the climate of the tropical rainforest. Overall this question was not well answered with very few candidates gaining beyond 5 marks.

Question 5

This question was mainly well answered and was the fifth most popular choice by candidates.

- (a) (i) Virtually all candidates answered correctly giving responses such as 'malnutrition, starvation, Kwashiorkor, Marasmus, hunger, lose weight' etc.
- (ii) Many candidates answered correctly stating 'within the tropics, East Africa, South of Sahara'. Yet some candidates listed countries, which did not gain credit as that is not describing a distribution. The majority of candidates made a good attempt at describing the distribution.
- (iii) The vast majority of candidates gained at least 2 marks for answers such as; 'drought, flooding, hurricanes, volcanic eruption, earthquake, pests'.



- (iv) Responses to this question were varied. Most were able to gain 1 or 2 marks for this question yet few gained the full 4 marks. The most common responses made reference to food being stored and imported. Few candidates were able to clearly make the point that there are many subsistence farmers in LEDC's compared with commercial farmers in MEDC's and explain its significance in terms of the impacts of poor harvests. Other examples credited from candidates were 'LEDC's can not afford to buy food, government has/does not have money to invest in agriculture'.
- (b) (i) This question was handled well by most candidates, especially for the first two parts. The final part 'irrigation' proved to be more problematic with fewer candidates gaining a mark here. Candidates gained marks for correctly identifying 'overgrazing makes soil bare/wind/rain removes it/tramples soil; overcultivation removes nutrients from soil/reduces soil fertility; irrigation makes soil salty'.
- (ii) This question was generally less well answered and quite a lot of vague answers were seen as many candidates simply took their ideas from Figure 9 and suggested they should not be done e.g. 'do not overgraze' etc. More specific responses discussed ideas such as 'crop rotation, fallowing and contour ploughing, or referred to the use of fertilizers/natural manure being used' with good development of points made. Many responses referred to irrigating the soil. These did not gain any credit as it was not what the question was looking for.
- (c) This question did not see a strong response from candidates. Irrespective of whether candidates chose good examples or not answers tended to be within the range of Level 1 only as they were often lists of simple ideas. Some responses did not show which were inputs, processes or outputs. There were some good examples used by candidates for example the Canadian Prairies, despite this many candidates simply named a country and described farming in very general terms. Some candidates wrote about subsistence farms for example in the Ganges Valley, which is irrelevant. Candidates should be advised that even in a question like this one, which seems to lend itself to listing, they will not get beyond Level 1 unless they develop points. Good advice would be to choose at least one input, process and output and write about those in detail, for example stating why it is needed/what its purpose is or expressing some other detail about it.

Question 6

This question was the third most popular choice made by candidates.

- (a) (i) The vast majority of candidates were able to define pollution and gained the mark for ideas such as; 'contamination of the natural environment/discharge of harmful products into it or examples of this'.
- (ii) This question was answered effectively yet marks were lost by some candidates who did not give enough precision in their answer for example simply stating 'fumes, oil leaks and noise' all of which are valid providing they were elaborated using 'from' for example 'noise from car engines, oil leaks from boats'. Many candidates gained at least 1 mark with many gaining full marks.
- (iii) This was quite well understood and many candidates gained at least 2 marks with many gaining the full 3 marks. Typical responses made reference to it being 'quick/easy to do and relatively cheap'. However, all mark scheme ideas were seen.
- (iv) Global warming and acid rain were the main examples chosen, with global warming being the most common. Global warming responses were generally good, with the majority of candidates gaining at least 3 marks and many gaining the full 4 marks. Some candidates confused global warming and ozone depletion, mixing the two responses and trying to explain that global warming was causing ozone depletion or vice versa. Candidates who chose ozone depletion as their example rarely scored beyond 2 marks. Acid rain responses were generally quite good, with candidates gaining at least 2 or 3 marks. An error made by all candidates was that they would often start writing about the effects of this global problem, which was irrelevant and did not gain credit.

- (b)(i)** The choice made by candidates between the airport and the incinerator was fairly even, but whatever choice was made candidates were usually able to gain marks. The main ideas discussed were; 'loss of habitat, impacts on food chains and visual impact' etc. Some candidates lost marks as they wrote about impacts on people rather than on the natural environment. Also some candidates who chose the airport lost marks as they wrote about the impacts of a rise in tourism rather than the impact of building a new airport. As is usual in all questions of this type some candidates gave simple statements such as; 'noise' and 'pollution' without elaboration, which alone are not worthy of credit.
- (ii)** This question differentiated well and many varied responses were seen. Most candidates gained marks but few gained high or full marks. A common answer, which was not credited was 'build it elsewhere' - candidates needed to think about how the development chosen could be made sustainable so an alternative location was not an option. Candidates gained marks for ideas such as; 'restrict the size of the airport/plane sizes, avoid building runways on parts of dunes/areas where sensitive species are growing, using local labour, use local materials' etc.
- (c)** Candidates who chose an actual scheme for example the Three Gorges Dam tended to gain higher marks compared with those who opted for a broad approach as the latter tended to make brief and simple points about each form of power. Candidates might benefit in case studies such as this by focusing upon their own country. Many textbook examples were used or quite often it appeared that candidates had little in depth knowledge and understanding and gained Level 1 credit for simple ideas and lists of energy types such as 'tidal power, HEP, wave power, coal mines'. To gain Level 2 candidates needed to describe how those energy supplies were being developed e.g. 'wind power is being developed offshore and in mountainous areas where there is more wind'. To then gain Level 3 marks candidates could then go on to name areas/regions where this is taking place, e.g. 'HEP is being developed in mountainous areas with high precipitation such as the pumped storage scheme at Dinorwic in Snowdonia'.

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

Comments on Specific Questions

Question 1

This was the most popular question, completed by about 95% of candidates and was well answered by many candidates, though the case study caused some problems.

- (a) (i) This was generally well answered by most candidates though some defined 'migration' rather than 'migrant' or used the word 'migrate' in their answers which prevented them showing their understanding of the meaning of 'migrant'. The best answers made it very clear that a migrant 'moves home and goes to live in another place' however some weaker candidates who used words like 'travel' and 'goes' were not all able to convey the correct meaning of 'migrant'.
- (ii) Most candidates knew that a refugee was a forced migrant, however the term 'asylum seeker' was not so well known. Of course not all candidates would have been familiar with the term 'forced migration', a fact which became apparent when they answered part (iii).
- (iii) The term 'forced migration' was not well understood or seen by some candidates. Thus, whilst most candidates did achieve some success with this question they tended to include push and/or pull factors, particularly economic factors, for voluntary migration, therefore losing marks. War and a variety of natural disasters were common correct answers, particularly references to drought and famine.
- (iv) The word 'international' was emboldened and so most candidates did refer to this, mentioning language and cultural difficulties plus problems relating to being accepted by the host nation, along with issues relating to employment and accommodation. Several candidates took the question very literally and mentioned factors which would have affected immigrants immediately upon their arrival, such as unpleasant immigration officers and factors such as disliking the food in the new country and not being able to read street signs, find their way about, cope with changing their currency etc.
- (b) (i) The majority of candidates gained 3 marks here but some either did not give 'Village' in A, gave 'Village' in B or did not refer to 'Foreign City' in C. A few gave named examples instead of identifying examples from Fig. 2 as the questions asked them to do.
- (ii) Most candidates did well on this question and were able to recognise relevant push and pull factors related to the example which they chose. Factors relating to generic or named examples were accepted. Less highly scoring answers either repeated push and pull factors or were not specific enough (e.g. better services rather than health care or education).

- (c) This question did not produce the expected answers from many candidates as they struggled with the concept of 'overpopulation' and tended to write about the problems caused by urban growth rather than overpopulation, many focussing entirely on squatter settlements. Relatively few wrote about the impact of overpopulation upon the natural environment (e.g. desertification, deforestation). The best answers were characterised by a clear understanding of the relationship between population and resources at a national scale. Too many candidates referred to China and its one child policy, however little was mentioned about any problems caused by overpopulation. Indeed many candidates who did focus correctly on problems caused by overpopulation wrote basic ideas with no development, a Level 1 response.

Question 2

This was a popular question with many candidates answering it. There were some excellent overall responses, however it differentiated well overall.

- (a) (i) Well answered by many candidates although it is surprising that some do not seem to have a clear and concise knowledge of key terms – more use could be made of glossaries to improve this. The use of the word 'rural' was not acceptable when defining a 'rural' settlement, nor was an example such as 'village' – candidates need to use words such as 'countryside' to show their understanding of what 'rural' means. Some candidates equated 'rural' to a lower level of development. Whilst this may be true of many LEDCs it does not define the term.
- (ii) Generally well answered with most candidates referring to settlement Y being unlikely to flood but distant from a water supply. Some candidates lost marks by making vague references to 'sloping land' and 'a long way from the river' without elaborating in terms of why this was a disadvantage. Some focused on the permeable rock, which few understood, so giving a range of incorrect ideas.
- (iii) Many candidates scored well on the positive aspects of Area X tending to access marks mainly by reference to water supply, flat land and shelter. Many candidates would have benefitted from elaborating some of the points they made, particularly in relation to transport and proximity to the river which were not always explained fully as advantages.
- (b) (i) Many candidates accurately read the graph to gain some marks, however some did not interpret the graph and make a clear, comparative statement that Lesotho had had the more rapid recent growth.
- (ii) Generally this question was answered well with good references to pressures on jobs, accommodation and specific services. Weaker responses either ignored the reference to 'people' and wrote about the natural environment or needed to elaborate their simple references to 'noise', 'pollution' or 'traffic'.
- (iii) This question was answered less well, and as in the previous part there was some confusion between impacts on people and the natural environment. Many answers did not go much beyond deforestation and air pollution, the best answers went on to develop the impact of these by referring to habitats, food chains and impacts on species. Too many candidates wrote about global issues such as global warming and acid rain at the expense of considering issues relating to the growth of urban areas on the local natural environment, such as the impact of waste disposal on water courses or the impact of extracting ground water on the water table.
- (c) This case study question differentiated well as some candidates gave a simple list of improvements whilst the best answers focused upon a particular shanty town or scheme with clear knowledge of the improvements made, backed up with statistics. There were some excellent, well rehearsed answers using Rio de Janeiro (Rocinha) and some particularly impressive place specific answers relating to Lagos. Self-help schemes provided the candidates with good options to include detail, however many suggestions were somewhat generalised in their accounts. Whilst they included many different points about education, transport, housing etc. many needed to develop some of these or show place specific ideas to achieve Level 2 or 3.

Question 3

A small number of candidates attempted this question. The candidates choosing this question generally knew about the topic(s) but some chose it inadvisably and lacked the knowledge to tackle the question fully.

- (a) (i) Generally well answered though some gave Sunday as the answer. Sunday has the lowest minimum temperature but not the lowest temperature range.
- (ii) Virtually all candidates scored on the first part, but some missed out on the second part by misinterpreting wind direction, not realising that the stated directions were where the winds were coming from not blowing towards.
- (iii) For those candidates that attempted this, most got the marks though a considerable number left it blank.
- (iv) Answers were of variable quality, some superb labelled diagrams, some just showing a straight forward thermometer and others were left blank. Assuming that candidates recalled the correct instrument, at least two marks were usually scored for the U shape, the maximum and minimum marking, however a few candidates drew wet and dry bulb thermometers.
- (b) (i) Reasonably well answered, but some candidates repeated the same response in slightly different ways, particularly with respect to the amount of cloud cover. Few candidates used the term 'oktas' and few named the different types of clouds. As always when a question asks for differences, candidates need to refer to both things they are being asked about or use comparative words such as 'higher'.
- (ii) Generally candidates did not answer this question well and few showed an accurate and in depth knowledge or understanding of the key processes. The most common correct points were a lack of moisture, vegetation and evaporation, however the best answers were able to make reference to distance from the ocean, high atmospheric pressure and descending air logically sequenced. Surprisingly many candidates attempted to explain how rain was formed, typically relief or convectional rainfall, without any attempt to relate their answer to the question asked. Some candidates wrote in great detail about the Hadley Cell but failed to mention other factors.
- (c) Whilst there were some excellent answers making good use of key terms such as annual temperature range and convectional rainfall, many candidates did not perform as well as expected on this question. They tended to focus upon the vegetation response to the climate type rather than writing a detailed description or explanation of the climate itself. Many gained 3 marks for describing the climate at Level 1 (hot, wet and humid) but fewer candidates were able to explain the climate convincingly and/or add accurate statistics. Some candidates followed on from **Question b(ii)** to misread the question and focused on deserts.

Question 4

This was a fairly popular question choice with some high quality responses to almost all parts.

- (a) (i) Generally well answered, most candidates could define the term though some did so by repeating the word 'boundary'.
- (ii) Again most candidates were able to gain both marks here. The specialist terms were well known and only rarely did candidates reverse them.
- (iii) Most candidates appreciated the fact that X is not on a plate boundary. Candidates then needed to develop their answer and explain why that resulted in there being no active volcanoes at that location, however many did not do so.
- (iv) This tended to be either well answered or poorly answered. Many weak answers were about destructive margins/subduction zones, however those candidates who could associate conservative margins with lateral plate movement usually clearly explained the sequence which resulted in an earthquake for full marks. Whilst many candidates did add a diagram few gained credit for it as they merely repeated what they had included in their written text.

- (b) (i)** This proved to be more difficult than expected with few candidates able to gain all 3 marks – photo interpretation seems to be a weakness of many candidates and few were able to correctly identify 3 features from the photograph. Some did not describe what they could see, instead they wrote about the things they would expect to see as part of an active volcano.
- (ii)** This was very well answered, candidates seemed to have a good knowledge of the reasons why people continue to live in volcanic regions and there were some well rehearsed, detailed responses. The best answers included the use of key terms and examples (e.g. geothermal energy /sulphur extraction).
- (c)** Kobe, the recent earthquake/tsunami in Japan and Haiti were very popular case study examples. Most candidates could describe the impacts in excellent detail, many gaining full marks through quoting accurate statistics, place names, precise dates or reference to the intensity on the Richter Scale. A few gave the name of the country rather than a more precise location for the earthquake and so were limited to a mark within Level 2. Errors included the choice of Mt St Helens and other volcanoes. Some candidates spent too long writing about the background and causes which were not asked for in this question. Given the fact that the Kobe earthquake is so well documented it is not surprising that many candidates used it in their answers. It is good to see though, that other candidates are being taught much more up to date examples, which is good practice.

Question 5

This question was one of the least popular questions, though answers were produced which ranged from the very weak through to those of the highest quality.

- (a) (i)** Most candidates knew the difference between the key terms, though a minority of candidates attempted to distinguish between subsistence and commercial farming simply by reference to the size of the farm.
- (ii)** Most candidates knew the meaning of ‘labour intensive’ but found ‘irrigation’ more difficult to define, possibly because of language difficulties.
- (iii)** Assuming a knowledge of the words ‘input, process and output’ the task was straight forward and candidates were able to score the full 3 marks. However some candidates could not distinguish inputs, processes and outputs, and just copied the labels indiscriminately, whilst other misread the question and did not relate their inputs, processes and outputs to the farm shown in figure 7B.
- (iv)** This question was one of the most poorly answered on the whole paper, many candidates repeated the word climate and failed to look at different elements of climate and few understood the key phrases ‘land uses’. From some candidates there was a simple understanding shown of the impact of temperature or rainfall, but many did not develop or exemplify their answers, with some focussing on soil type or relief rather than climate. The best answers suggested specific crops and climatic requirements, and they often exemplified by reference to farming in Britain (e.g. hill sheep farming takes place where the climate was wetter and cooler), or to activities such as rice farming in the tropics. Simple ideas about what a farmer might do if it was cold/rained or was hot/dry were given credit but rarely did any candidate refer to other climatic aspects such as frost free days or the length of the growing season.
- (b) (i)** Many candidates were able to pick out information from Fig. 8 but the question asked for ‘changes’ between 1980 and 2010 which was missed by some candidates who referred simple to 2010.
- (ii)** The candidates who understood what was required here referred to ‘more money’ and then developed the impact of this on quality of life, for example in terms of healthcare and education for the family etc. In contrast many relied on statements relating to what farming improvements could be afforded (e.g. more crops, fertilisers, machines), rather than exploring the improvements to the farmers’ lives. Some answers tended to be more generalised and did not refer to income. The occasional candidate wrote a more sophisticated answer which indicated an “upward” cycle of improvement and development. Other candidates referred to less tangible benefits, such as having the marketing organisation to make decisions and to reduce stress or to fall back on for advice.

- (c) Generally answers to this question were well focused, with Sub-Saharan Africa being a popular choice. There were some very good answers where candidates showed a good knowledge of the human and physical causes of food shortage, well backed up with place specific knowledge, though place specific details were not common. There were some very good explanations of political reasons for food shortage in war torn countries like Sudan and Ethiopia, which often went further than the usual drought and overpopulation answers. Candidates should consider an explanation of difficulties caused by poor farming practices (e.g. overgrazing) as these were not often mentioned.

Question 6

This was the third most popular question and there were many impressive answers, including the case study question.

- (a) (i) Most candidates could use the key to correctly identify a resort, though a few wrongly selected Palma which is keyed as 'main city and port' rather than a resort.
- (ii) Most candidates could identify a natural and human attraction, however some did not read the question carefully enough as they did not name their chosen attractions.
- (iii) Generally well answered, but some candidates wasted time explaining how visitors enjoyed themselves in the hot, dry and sunny climate, giving a list of activities or even mentioning their own holiday there. Whilst a comparison was not required here it was essential for candidates to interpret the information rather than simply quoting statistics for July and August. Whilst it was understandable that candidates from some parts of the world viewed average temperatures of 25C as not being particularly hot, a simple comparison of the monthly figures should have enabled them to arrive at the correct conclusion regarding the attraction of temperatures such as this.
- (b) (i) Most candidates were able to access marks here by interpreting Fig. 10 – the most common points were the beauty, uniqueness, and the availability of diving and boat trips.
- (ii) Most candidates selected two human activities which threaten the reef and went on to explain their impacts clearly. Some did not gain marks because they simply repeated information from the diagram (e.g. 'damages coral') whilst some did not gain full marks because their explanation was the same for both points (e.g. 'kills species'). Most candidates went beyond such simple repetition and there were some particularly pleasing explanations of eutrophication and impacts on food chains. Despite using 'dredging' or 'intensive' fishing as examples, some candidates did not really understand what actually happened in either case.
- (iii) There were some good suggestions relating to all of the offending activities, although a weakness was to be too unrealistic (e.g. ban everything) and some answers did not show much understanding of the reality of the situation e.g. 'put big fences around the reef'. The best answers stated exactly how protection and conservation could be achieved (laws, fines, reserves, restrictions of numbers, zoning, education relating to the impacts etc.).
- (c) The focus of this question was on the benefits and problems for local people. Whilst it was generally well answered this was missed by some candidates who just wrote about the effects of tourism on the location or the natural environment without linking it to the local people. The best answers gave examples of jobs, referred to the seasonality of the jobs and also wrote about loss of homes for resorts and issues of increasing traffic causing air pollution and breathing problems, smog, and delaying the locals getting to work, some with place specific details. They developed the points (e.g. tourism is seasonal so people will be unemployed during the winter months), and they offered a balanced view between good and bad points. Alpine resorts, resorts/areas in Kenya and Mediterranean resorts, such as Benidorm, were popular case study choices. Some candidates named a large country rather than a smaller area within it or a specific resort so were limited to Level 2.

GEOGRAPHY

Paper 2217/13

Paper 13

Key messages

The following items of general advice, which have been provided previously in this report, need to be given to future candidates who should:

- make the choice of questions with care, ensuring that for each question they choose they have a named case study about which they can write in detail and with confidence.
- answer the three chosen questions in order, starting with the one with which they are the most confident, and finishing with the one with which they are least confident (in case they run out of time).
- read the entire question first before answering any part, in order to decide which section requires which information to avoid repetition of answers.
- highlight the command words and possibly other key words so that answers are always relevant to the question.
- use the mark allocations in brackets as a guide to the amount of detail or number of responses required, not devoting too much time to those questions worth few marks, but ensuring that those worth more marks are answered in sufficient detail.
- consider carefully their answers to the case studies and ensure that the focus of each response is correct, rather than including all facts about the chosen topic or area, developing each point fully rather than writing extensive lists of simple, basic points. It is better to fully develop three ideas rather than write extensive lists consisting of numerous simple points.
- study the resources such as maps, photographs, graphs, diagrams and extracts carefully, using appropriate facts and statistics derived from resources to back up an answer and interpreting them by making appropriate comments, rather than just copying parts of them.

This was the first year in which candidates used a question and answer booklet to write their answers. As this will be the format used in future it is important that candidates are made aware that they should:

- write all their answers in the spaces provided in the booklet and not use additional sheets unless it is absolutely necessary.
- write only on the lines provided, not underneath the final line or elsewhere on the page (e.g. in any area of unused space at the bottom of a page).
- continue any answers which they do not have space for on the lined page(s) at the back of the booklet. If they do this they must indicate that they have done this (e.g. by writing 'continued on Page XX') and carefully write the number of the question at the beginning of the extra part of their answer.

General Comments:

This was the first year in which candidates used a question and answer booklet to write their answers. This format was well received and in the vast majority of cases candidates made effective use of the space provided. Some candidates required space on the extra lined page which was provided for their use and a few used loose sheets of lined paper. There were a few candidates who wrote all their answers on separate paper rather than in the booklet. This was clearly the fault of the invigilators/Supervisors rather than the candidates so the work was marked and candidates were not penalised.

The examination was considered appropriate for the ability range of candidates and a high Level of differentiation was achieved throughout. Many excellent responses to all questions (whichever were opted for) were seen and all candidates, including those who gained A*/A grades, were able to show their Level of ability. Structured questions referring to source materials provided all candidates with opportunities to gain marks, and particularly those worth fewer marks allowed all candidates to achieve positively. Inevitably there

were some candidates who for a variety of reasons performed poorly in the examination (e.g. lack of understanding or linguistic difficulties), however these were relatively few in number.

Many candidates attempted to use geographical terminology appropriately and confidently and were able to recall case studies in detail, particularly when they chose case studies local to them or from within their own country. Many candidates are able to give detailed Level 2 responses and to improve further they should try to also include place specific detail in order to achieve full Level 3 marks. Candidates who tend to list their responses in bullet point form or make simple, brief points are able to gain marks in the Level 1 range. In order to improve their performance they should try to develop each point which they make.

It has become apparent that some candidates are using case study answers, parts of which have been included in previous mark schemes to illustrate place specific details. Some candidates seem to be just learning and repeating the place specific phrases verbatim from the old mark schemes rather than showing their knowledge and understanding of the case study which the question asks for. Whilst reference to previous mark schemes by teachers in their teaching and revision is not a problem it must be remembered that these listed place specific ideas are simply a guide to Examiners. If the case studies are used with candidates the materials should be taught as with any case study and the place specific details (and others) included in context of the example being chosen. On no account should candidates be given a list of place specific phrases and be encouraged to learn them without developing any understanding of the case study.

Comments on specific questions:

Question 1:

This proved to be the most popular choice of question by candidates and was overall generally well answered.

- (a) (i) Many candidates correctly identified the birth rate for Niger as 54 per 1000. Candidates should be reminded to always express their answer as a 'figure per 1000' when responding to questions referring to birth/death/population growth rates.
- (ii) Most candidates knew how to calculate the answer for natural population growth rate (i.e. birth rate minus death rate). Some candidates were able to accurately read the figures from the graph and provide the correct response. As for (ai) above candidates should try to express their answer as 'per 1000' in order to gain the full 2 marks.
- (iii) Many good responses seen here with full 3 marks awarded. The most common responses referred to were: better/more medicines used; improved healthcare; better water supply; improved sanitation; improved food supply. The vast majority of candidates gained at least 2 marks. Some candidates misread the question and wrote about birth rate decreasing rather than death rate. Candidates should try to avoid vague statements, such as improved standard of living and explain what it is about their standard of living or quality of life that has improved to gain the marks.
- (iv) On the whole very impressively answered with good references made to awareness campaigns, banning prostitution, sharing needles, screening of blood and testing for AIDS. Candidates should avoid focusing on one aspect such as 'education' and developing this in great detail rather than explaining what else could be done. Also rather than simply stating 'use contraceptives' candidates should be more specific and identify the use of 'condoms' for this question as they are the only means of contraception for preventing the spread of HIV/AIDS. There were some extreme responses given such as 'lock away AIDS victims'/'keep people with AIDS separate from other people' which did not gain any credit nor did simplistic references to 'giving them medicine' or 'vaccinate people against AIDS' as at the moment there is no vaccine or medicine to prevent or cure AIDS.
- (b) (i) This question was well answered by many candidates and good use was made of data from the graph to back up candidates responses. The majority of candidates were able to identify the relationship as a negative one (i.e. the higher the number of births per woman the lower the percentage of girls in secondary education - or vice versa). In order to gain the full 3 marks candidates then needed to give examples using data from the graph to illustrate this relationship e.g. 'in Mali there are 7 births and only 5% of girls in secondary education whereas in Canada there are 1.2 births and 100% of girls in secondary education'.

- (ii) Very well answered by most candidates with many detailed responses gaining development marks. Most ideas from the mark scheme were seen with many other relevant points being made by candidates. The most common responses included: 'can get a job and earn more money so that they can improve their quality of life'. 'Educated women will practice family planning and reduce the birth rate and also the spread of HIV/AIDS'. 'They are also more likely to educate their own children and there will be more gender equality'.
- (c) The most common case studies used were USA, Germany and UK although there were a few based on local case studies such as Malaysia. Candidates should ensure they write specifically about what the question asks for i.e. 'pull factors' as many candidates not only wrote about pull factors but also wrote extensively about 'push factors', which did not gain any credit. Points needed further development of basic points like 'jobs' and 'education' in order to gain Level 2 marks. Place specific detail is required for full Level 3 marks. For example pull factors for Level 1 are simple ideas such as 'to get a job, better education, food'. To gain Level 2 candidates can develop those ideas as follows: 'there are many jobs available in the construction industry or factories, there is greater access to schools and colleges so that children will be better educated, there is a wide variety of food available to buy from shops rather than relying on unproductive farmland'. To then gain Level 3 candidates need to include some place specific reference e.g. naming universities or colleges or naming a place e.g. 'Jobs in the construction industry available in Dresden after the second world war as Dresden needed rebuilding'. Or 'universities such as Harvard in the USA or Oxford and Cambridge in the UK' depending upon the case study used.

Question 2

This proved to be the second most popular question selected on the paper and responses were varied.

- (a) (i) This question was generally well answered with the vast majority of candidates gaining the mark for correctly identifying that 'there was a greater number of shops in settlements of more than 2000 people' or vice versa. Some candidates preferred to express their answer using figures from the graph such as '13 in settlements of more than 2000 but only 4 in settlements with less than 500' both were acceptable responses.
- (ii) Most candidates gained at least 1 mark and correctly identified low order services such as newsagent, church, general store, post office, primary school etc. Some examples were too vague for credit such as food shop or school and needed further clarification for development e.g. greengrocers or primary school respectively. Other answers were not credited as they would not usually be found in settlements of this size e.g. secondary school, supermarket or petrol station.
- (iii) Many candidates referred to small threshold population or small sphere of influence but the most common response was selling low cost items. Many candidates wrote about poor quality of services in rural settlements. Whilst this may possibly be true in an LEDC it does not apply to such services in an MEDC. The majority of candidates gained at least 1 mark and the question proved to be useful in differentiating candidates.
- (b) (i) Many good responses were seen referring to 'small size, little variety, shops selling similar goods in all areas, selling convenience goods' etc. Some responses focused more on poor quality services or goods, of which there is no evidence. Many candidates wrote about not many people living nearby which did not answer the question. It is essential that candidates ensure they are familiar with such key terminology as 'Sphere of Influence' for their examination.
- (ii) Many candidates focused upon why LEDCs would not have these services in rural areas giving ideas such as lack of wealth, education etc. which would have been credited had the statements started 'in an LEDC...' however few candidates did this and as lack of wealth or education in rural areas of MEDCs is often not true marks could not be awarded. Responses which gained credit were those which focused on the larger potential market/customers available in an urban area, large sphere of influence, large threshold population needed, high order service, with many candidates actually using the key terminology which is encouraging to see.
- (iii) This question was generally well answered with most candidates gaining marks for ideas such as; high rise buildings, high cost of land, traffic congestion, little open space, specialist shops with examples, good accessibility to name just a few. Some vague responses were seen such as 'shops', 'leisure' which did not gain credit. Many candidates gained full marks or at least 3 or 4 marks here.

- (c) Some well developed responses were seen using examples such as Rio de Janeiro, Singapore or Shanghai but these were in the minority. Many responses were vague with many irrelevant ideas, for example writing about the development of shanty towns or migration in general. Some candidates used Liverpool as their case study which was taken from a previous mark scheme. This is a good idea to use past mark schemes but candidates should not rely solely on this for revision or examples as they need to show their understanding within their writing. In many cases it was evident that candidates did not really understand the question or what they were writing about. Once again those who used local examples performed much better, as the Shanghai, Singapore, Shenzhen and Kuala Lumpur answers showed. Some candidates who used local examples and included place specific information did not always develop their ideas thoroughly.

Question 3

This question was generally well answered and was the joint fourth most popular choice by candidates.

- (a) (i) The vast majority of candidates correctly answered 'Richter Scale'. A few candidates gave the magnitude of the earthquake.
- (ii) This was well answered with most candidates gaining marks for the number of deaths, people being made homeless, monuments damaged, churches/historic buildings damaged. Most candidates scored at least 1 mark.
- (iii) This question was also generally well answered with most candidates gaining at least 2 marks for the following ideas; 'recording tremors/using seismometers, measuring radon gas, animal behaviour'. Most candidates also gained the mark for the evaluative comment to show that it is difficult to predict earthquakes precisely.
- (iv) Improvements in the quality of candidate's responses compared with previous years were seen as many candidates correctly identified the sequence of events and responses tended to have more geographical terminology as opposed to vague statements like 'plates bumping into each other'. Candidates gained marks for ideas such as 'plates move together/apart/past each other, they stick together, pressure builds up and eventually pressure is suddenly released'. The majority of candidates gained at least 2 marks with many gaining 3 or 4 marks.
- (b) (i) This question was very well answered by most candidates with good understanding shown. Very few candidates gained low marks on this question with many gaining 2 or full marks. The most common responses were; 'hollow concrete blocks will cause less injury if they fall on you, shatterproof glass on windows stops people being cut by it, springs will allow the house to move with the earth, reinforced concrete roof is less likely to collapse'.
- (ii) Many good answers were seen here with many of the mark scheme points appearing regularly for example; 'they have lived there all their lives, close to family and friends, have a job in the area, can not afford to move, willing to take a risk, preparations for earthquakes e.g. drills'. Some candidates responses referred to the advantages of living near volcanoes which were not credited, fortunately not too many did this. A common answer which did not gain credit was 'cheaper land/house' which is not necessarily true.
- (c) Varied answers were seen here and the question differentiated well between candidates. Responses tended to be better on effects than causes no matter which natural hazard was selected. Candidates were more able to effectively explain the causes of hurricanes than droughts but candidates were less confident with explaining causes generally. Candidates were not clear on the meaning of the word 'drought' (i.e. a prolonged period of time without any rain) or its causes and many tended to write about desertification as a cause. The effects were more impressive with many developed responses highlighting the loss of life and property and crops destroyed leading to starvation. Overall, good examples of tropical storms were Hurricane Katrina and those which have affected Bangladesh. Relatively few candidates referred to examples from their own country which may have gained higher marks with more place specific detail. Drought answers tended to be based on the Sahel region. Many responses again provided detailed effects but less detailed ideas for causes, candidates should ensure that they understand the causes of natural hazards as well as focussing simply upon the effects.

Question 4

This was the least selected question by candidates and responses were varied.

- (a) (i) This question was answered correctly by the majority of candidates stating 'the material which the river is carrying'.
- (ii) The majority of candidates gained at least one mark for correctly identifying suspension or saltation with many candidates gaining full marks for correctly identifying both. It is pleasing to see that candidates know their key terms and definitions.
- (iii) Many candidates gained 1 mark here for identifying that 'more load will be carried' less candidates identified that 'heavier materials will be carried, a greater amount of traction will occur, materials usually moved by traction may be moved by saltation or that there will be more material in suspension'.
- (iv) The majority of candidates correctly identified two areas with the most common areas being the inside bend of a meander, lower course of a river or mouth or a delta. Candidates often gained 1 mark for one reason as quite often the same reason was given for the two different areas. The most common reason given was the energy of the river decreases causing the particles to be deposited. Other reasons that could have been referred to are; load carried is too heavy for the river, still water, flocculation/salt water makes particles sink'.
- (b) (i) Generally this question was well answered. Candidates made good use of the photograph and identified features such as the plunge pool, undercut, overhang etc. Some candidates wrote about vegetation which was irrelevant, some candidates also wrote about a 'steep sided gorge' which was not visible from the photograph and presumably was recalled from memory of what they would expect at or near a waterfall. Candidates should get into the habit of describing what they can see rather than what they expect to see.
- (ii) Many detailed and impressive responses were seen which were often accompanied by labelled diagrams. However, the diagram rarely gained any extra marks as they often repeated what the candidate had already stated previously. Many candidates gained 4 or 5 marks, very few gained less than this. Marks were most commonly awarded for the following ideas; 'the river flows across hard rock which is underlain by soft rock, the soft rock is eroded faster than the hard rock, by hydraulic action, the hard rock is undercut, forming an overhang, the overhang collapses, forming a plunge pool, this process repeats and the waterfall retreats. A few candidates also referred to waterfalls being formed due to geological faults which was also credited.
- (c) This response was generally well answered with many detailed examples given. Most common case studies were the Mississippi or the Yangtze. Some candidates used Lynmouth and Boscastle as case studies with limited success as those case studies are better suited to causes and effects rather than prevention. However, some candidates were able to describe some prevention methods from these case studies. Many responses were well developed into Level 2 but quite often place specific detail was omitted which prevented candidates from gaining Level 3 marks. As previously stated the best responses were seen when candidates wrote about rivers local to them either from their country or part of the world rather than from a distant place that they know little about. Some candidates did not develop their responses and gained only Level 1 marks. For example; 'build higher banks' could be developed to say so the river will have a greater capacity to hold more water, or 'build dams' could be developed to regulate the flow of the river. Place specific information could include names of other rivers/tributaries joining the main river or names of towns/cities, dates or figures pertinent to the particular case study selected.

Question 5

Joint fourth most popular choice by candidates and generally well answered.

- (a) (i) The majority of candidates correctly identified 'Marathwada'.
- (ii) Many candidates correctly identified 'rivers and streams' fewer candidates identified 'wells' for the second mark. Some candidates repeated 'tankers' from the first question and some references were made to 'groundwater' which did not gain any credit.
- (iii) This question was generally well answered by the majority of candidates. Most gained at least 2 marks with many gaining the full 3 marks. Most common responses were; 'less rain fallen than water used/not enough rainfall, rivers/lakes will dry out/water is lost, people cannot use river water'. Candidates found the 'evaporation' answer most problematic as many candidates just repeated the word 'evaporation' rather than showing an understanding of what it meant.
- (iv) Most candidates scored at least 2 marks. The most common responses were 'water treatment/purification, conservation'. Some candidates also included ideas such as 'dams/reservoirs, wells, desalination, import water from other countries' a few candidates referred to methods such as 'cloud seeding, water transfer schemes' although these responses were not seen as often as would be expected. Some candidates referred to ideas such as 'tankers, stop deforestation, plant trees' which did not gain any credit.
- (b) (i) This question was well answered by the vast majority of candidates gaining at least 2 marks for the following responses; 'water pumped into treatment works/water pumped from river, water pumped through pipes/by electricity, chemicals added to water, sediment allowed to settle'. The most common error was 'by generator'.
- (ii) Most candidates correctly identified the benefits to people of having 'cleaner/safer/more reliable water supplies' and some responses were developed appropriately for example 'it can be used for drinking or domestic purposes, reduction in death rates as less water borne diseases'. Too many candidates focused on the advantages for agricultural use, which was not credit worthy as treated water is not necessary for irrigation purposes.
- (c) Many candidates achieved some success on this question by referring to obvious causes and effects e.g. 'sewage dumped into river' for Level 1, or 'waste chemicals released from factories' for Level 2 causes. Many effects were given including 'kills fish' for Level 1 or 'food chain disrupted/names of species killed or at risk from extinction' for Level 2. Few candidates really developed their answers fully and place specific detail was limited to merit high Level 3 marks. There were some exceptions with some notable answers using the Gulf of Mexico oil spillage and Exxon Valdez case studies. The best responses again were those from candidates' own localities or part of the world as candidates can write with ease as they are more familiar with the location.

Question 6

The third most popular choice by candidates and generally well answered.

- (a) (i) The vast majority of candidates correctly calculated 12 million.
- (ii) This question was also answered correctly by the majority of candidates they correctly identified 'textiles or machinery' for part **A** and 'electronics/telecommunications equipment or computers' for part **B**. The most common errors were choosing 'agriculture' for a manufacturing industry and 'chemicals' for a high technology industry.
- (iii) The vast majority of candidates gained full marks for this question with candidates most commonly identifying; 'GDP increased per person, increase in adult literacy, greater access to safe water, reduction in infant mortality, increase in high technology industries, increase in urban population'. A few candidates gave statistics but did not identify the change (i.e. increase or decrease), some candidates also identified an 'increase in total population' which did not gain credit however, these errors were rare.

- (iv) Many candidates gained at least 1 or 2 marks for identifying 'cheap labour and/or land and skilled labour' as reasons for locating in NIC's. Some candidates also referred to 'growing markets/government support/communications and lack of restrictions' therefore scoring full marks.
- (b)(i) This question was generally well answered with candidates correctly identifying that there was 'a reduction in primary and secondary industry whilst tertiary increased'. The majority of candidates gained at least 1 or 2 marks with many gaining full marks. However some candidates lost marks by not focussing on the changes and instead describing the situation in each of the stated years. Candidates would be better advised in this type of question to use words like 'reduced' and 'increased' to clearly show the change.
- (ii) Fewer candidates scored full marks here although most were able to score at least 1 or 2 marks. Most common responses were for reference to 'education or more skilled, mechanisation, more money to spend on services, import of food supplies or running out of raw materials'. Most of the other mark scheme points were referred to by some candidates with appropriate development. Some candidates were sidetracked by issues relating to improved pay and working conditions, which whilst true, are not reasons to explain the changes in employment structure.
- (c) Many candidates were able to gain up to 5 marks here with few gaining full marks. This was largely due to candidates either selecting a high technology industry rather than a manufacturing or processing industry or not naming a precise location. This limited candidates to just 5 marks. Many candidates who selected an appropriate example (e.g. Baltimore, USA) did not locate it precisely and simply gave the name of the country. Many responses were simple Level 1 statements e.g. large workforce available, good transport links. Some candidates developed some of their responses for Level 2 e.g. 'large workforce with engineering skills'. Place specific detail was rarely seen but could have included names of cities/ports/motorways. Some of the better case studies seen were about car assembly, either in Bratislava, Slovakia or Detroit, USA. It was surprising that car assembly examples from South East Asia (i.e. local case studies) were not often seen as answers to this question.

GEOGRAPHY

Paper 2217/21
Investigation and Skills

Key Messages

- Practical skills questions need to be completed precisely.
- Given data should be interpreted to show understanding.
- In **Section B**, careful analysis should be backed up with evidence.

General comments

This paper was comparable with that for the previous year, with a balance of more difficult questions, such as **1(b)**, **1(c)(iii)**, **2(c)** and **5(b)**, and easier parts, such as **2(a)**, **3(a)**, **4(c)** and **6(c)(i)**.

In **Section B**, **Question 7** was more popular than **Question 8**.

Comments on specific questions

Section A

Question 1

- (a) Candidates were asked to identify the features indicated by Fig. 1. A was a railway. Some candidates wrote more than was necessary, taking the whole line from the key. The road at B was a wide tarred road. The spot height at C was 1568 m. D was a dip tank and E was a bridge. The fact that both of these were asked prevented some of the confusion that sometimes occurs with these two symbols. Hill feature F had two peaks.
- (b) For the grid reference either 780878 or 780879 were accepted. Candidates tended to put 1 instead of 0 for the third figure.
- (c) The road distance between the two bench marks was within the range of 1800 - 2100 metres. Their heights were given on the map so, by subtraction, the difference could be determined precisely to be 11.28 m. This led to a gradient of between 1 in 159 and 1 in 187 depending on the value of the measurement in part (i). Candidates usually completed the first two parts, but did not always know how to turn their figures into the gradient.
- (d) To complete the cross section candidates simply had to show that the land decreased in height to the edge of the section. A high degree of accuracy was not necessary for this exercise. The road was between 27 and 31 mm from the left axis, while the river was at 45 - 48 mm. Some candidates were unsure as to how to indicate the position. Attention should be drawn to the example given on Fig. 2.
- (e) Here candidates were looking at the whole of the map, in order to generalise. Cultivated areas are found near to rivers, on flatter, lower land and where buildings of some kind are located. Most candidates made at least one valid point.
- (f) Here candidates again focused in on a section of the map, as shown in Fig. 3. The River Nyamakovera flows to the east, with a gentle gradient and has tributaries, meanders and rapids. It appeared that some candidates had tried to do their description from Fig. 3, rather than finding the relevant area of the map, which restricted the scope of their description. To complete Fig. 3, the gravel / earth road needed to be shown crossing the bridge, with a second mark available for extending the route to the edge of the area. Some candidates showed good accuracy here.

Question 2

- (a) Most candidates were able to correctly complete Fig. 4, with 2% males aged 55 - 59 in the USA. They were able to read the scale and deduce 4% for the males in Germany in the 35 - 39 age group. Many also realised that Kenya showed the shortest life expectancy.
- (b) The pyramids for Kenya and USA show several differences. Kenya has more young dependants, while USA has more of working age and more old dependants. Comments about birth rate, death rate and life expectancy were not valid, since they were moving away from description of the pyramid.
- (c) Candidates had to match the countries shown on Fig. 4 with their stage in the Demographic Transition Model. Germany is stage 5, due to its very low birth rate, very low young population and decreasing population. Kenya has a higher birth rate and a high young population, with a rapid increase in overall total. Either stage 2 or stage 3 was acceptable for Kenya. USA is in stage 4, exhibiting low birth rate and low population increase, shown by the straight-sided pyramid. Candidates found this difficult.

Question 3

- (a) Most candidates were able to determine evidence of human activity in Photograph A. They mentioned the tent / shelter, the lines of stones, the sign board, the lack of undergrowth and the compacted ground / tracks.
- (b) The photograph was taken in the dry season, as illustrated by the bare trees with only a few, brown leaves and the dry ground lacking in undergrowth.
- (c) Many candidates correctly completed the graph in Fig. 6. The photograph was most likely to have been taken in July or September. Some candidates selected May, with its lower rainfall. The previous months show this to be at the end of a wetter season.

Question 4

- (a) Volcanic activity is located to the west side of the central Italian mainland, and some of it is coastal. Other areas are around the island of Sicily. Some candidates described general locations in relation to the land masses in this way. Others used human features shown on the map. e.g. "three sites near Naples". Either approach was acceptable or a combination of both.
- (b) Vulcini has been dormant for the longest period while Volcano and Pantelleria had eruptions only one year apart. Candidates had to be careful to match the data with the correct volcano.
- (c) Here the reason given was the critical part of the answer. In part (i), candidates could select Vesuvius or Etna and needed to point out that they are on the main land, with Vesuvius near a city. In part (ii), Stromboli is likely to be least disruptive due to being located out at sea.

Question 5

- (a) Most candidates were able to complete Fig. 8, with the data for Australia. They also read the energy consumption of Vietnam's residential sector as 71%.
- (b) The three largest sectors in both countries are transport, industrial and residential with different relative importance in the two countries. Vietnam has more residential use while Australia has more industrial and transport use. Some candidates took the three largest sectors overall and wrote about these only.
- (c) Vietnam has a hilly landscape, dissected with valleys which can be dammed to create reservoirs, while the high rainfall ensures a water supply to fill them. The presence of hills also implies the presence of the vertical element necessary to provide a head of water. From the information in Table 2, Central Australia lacks these features. Most candidates wrote about Vietnam's suitability, though to write about Central Australia's unsuitability was also accepted.

Question 6

- (a) Candidates were able to give reasons for the location of the car factory. Physical factors included flat land on the floodplain, river for transport, and access to the sea, as well as the river valley providing a route way, while human factors included labour from and a market in the nearby housing areas and the proximity of the motorway. Energy sources suggested by Fig. 9 were oil or hydroelectric.
- (b) The primary industry on Fig. 9 was fishing, indicated by the fishing village, or forestry, indicated by the wooded hills. Some candidates put oil refinery.
- (c) To complete Fig. 10, candidates had to draw 4 complete cars against year 9, ideally of the same size as those already shown. Most candidates had done this. They were not penalised for inaccurate size. Car production increased by 150 000 from year 1 to year 4, shown by 1½ cars difference on Fig. 10.

Section B

Key messages

- When answering Hypotheses questions that ask whether you agree or not, always give your opinion first before any supporting evidence. This will usually be Yes, No or Partially.
- When giving figures in an answer always give the units if they are not stated for you.
- Read questions carefully and identify the command word e.g. *Describe, Explain...* Particular questions where candidates did not score well also often related to them not fully understanding the question, for example **Question 2(c) (iv)** where many candidates wrote about the causes of air pollution and traffic congestion
- Check you are using the Resources that a question refers you to e.g. Table 3, Fig. 2.
- Take into account the marks awarded. Examiners do not expect you to be writing outside of the lines provided so do not write a paragraph when only two lines are given – this wastes time.
- If you have to write more than the lines allowed indicate this with a phrase such as (*continued on page 11*). This is very helpful to the Examiner in finding your answers.

General comments

Most candidates found this examination enabled them to demonstrate what they knew, understood and could do. The overall range of marks went from 12 to 56 out of 60 – a similar range to previous years. Weaker candidates scored well on the practical questions, such as drawing and interpreting graphs and making calculations, and those of higher ability scored well on the more challenging sections requiring explanation and judgement especially regarding hypotheses. Overall there was little difference in the standard of answers between **Questions 1 and 2**.

There is less general advice to be given for areas for improvement with this paper compared with others. As there are no choices to make, it is difficult to miss sections out, although some candidates omit graph completion questions which are usually 'easier' to answer. Although there were no reports of time issues some candidates do write too much in some sub-sections. They should be encouraged to answer more succinctly and perhaps give more thought to their answers. Most points for teachers to bear in mind, when preparing candidates for future Paper 41 questions, relate to misunderstanding or ignoring command words and the use of appropriate fieldwork techniques. Questions which require candidates to explain sampling are still answered poorly. This is an area in which Centres could do more preparation with candidates.

Centres need to realise that, although this is an Alternative to Coursework examination, candidates will still be expected to show that they know how fieldwork equipment is used and appropriate fieldwork techniques even if they have only limited opportunity for fieldwork within the Centre, for example **Question 2(a) (i)** required candidates to comment on the use of a questionnaire.

Comments on specific questions

Question 1

- (a) (i) Most candidates scored well. A variety of dangers were suggested including chemicals and disease in the water, swallowing polluted water, allowing the water to touch the skin or get into eyes. Protection strategies included boots, waders, waterproof clothing, rubber gloves and goggles. Sometimes the protection strategy was not appropriate to the danger for example a few candidates suggested wearing radiation suits and masks to undertake fieldwork. A more common mistake was made by candidates who ignored the reference to pollution and wrote about general dangers of river fieldwork such as strong currents.
- (ii) Many candidates scored both marks by reference to ideas such as visible materials in the water, colour, smell and testing a water sample. Some candidates did not explain what they were trying to test, such as pH. A minority of candidates incorrectly suggested asking local people or the factory owner.
- (b) (i) Most candidates showed a good understanding of the hypothesis and were able to correctly interpret the evidence which supported the hypothesis. Supportive evidence was usually focused on changes in visible pollution and ammonia. Only a small minority of candidates made reference to sites along the river or distance from the factory.
- (ii) This was a challenging question. The three most common responses focused on dissolving, dispersing or diluting of the pollution. Answers which were not credited included ideas that pollution would stick to vegetation or stones, or pollutants would be eaten by fauna. Although this is a possibility the ideas were too vague for credit.
- (c) (i) Most candidates understood what kick-sampling meant and that it was necessary to move the animals into the open river.
- (ii) Also most candidates suggested putting the net downstream to catch the animals. Some candidates wrongly suggested placing the net upstream as this is where there is most pollution.
- (iii) Some candidates did not seem to understand the question. A common error was that they wrote about animals being killed by pollution. Only a minority of candidates succinctly made the point that the reason for identifying the animals was to work out the Biotic Index. A more common response suggested that identification of the animals linked to how polluted the water was or the quality of the water.
- (iv) The most common answer which did not gain credit was that results would be 'more accurate'. This response is too vague because it does not explain why this would be the case. Answers which did gain credit included reference to gaining an average score which might be more accurate, eradicating errors in measurement, and greater reliability of results.
- (d) (i) Most candidates correctly calculated the score. It is important to show the calculation, even when it is done by using a calculator, to show that the method of calculation is understood.
- (ii) Most candidates completed the scatter graph accurately, although some did not attempt the question.
- (iii) The question discriminated well. Only the most able candidates used figures to support their answer. Most candidates made statements which included 'increase' or 'decrease' to show their recognition of the pattern shown. Candidates who failed to grasp the principle of the Biotic Index wrote about how the level of pollution changed.
- (iv) Many candidates did not grasp the idea that different species could tolerate different levels of pollution. So they wrote about numbers of species rather than specific types of species. Many candidates did not use evidence of species from the table but made the correct link between the biotic score and the level of water pollution. Candidates who had grasped the principle of the Biotic Index often scored full marks.

- (e) Most candidates correctly identified two other types of pollution, most commonly litter or rubbish or garbage, fertilisers from agricultural run-off, sewage and oil from boats. Some candidates did not read the question carefully enough and wrote about pollution from industry.
- (f) Many candidates found difficulty in developing a new hypothesis. Despite the instruction that their hypothesis should not be related to a polluted river, many candidates stayed with the theme of pollution, repeating the same type of exercises which had been done in a polluted river but doing them in an unpolluted river. Where candidates realised that this was an opportunity to write about other river fieldwork, they wrote with confidence about testing depth, speed of flow, and differences between a straight river section and a meander.

Question 2

- (a) (i) Many candidates understood why the candidate would not want the opinions of local people in order to investigate the hypothesis. Other answers suggested that it would waste peoples' time and that the views of local people would distort the results.
 - (ii) Correct responses judged that asking for physical and human attractions separately would help the candidates to classify results and make analysis of the data easier. A common answer which was not accepted was that it would make the questionnaire quicker or easier to answer.
 - (iii) The most common response was that most tourists came from Asia. Many candidates also scored a second mark by reference to either Europe as second most popular or Africa as least popular origin. Some candidate mistakenly attempted to explain the results shown in the table.
 - (iv) Most candidates correctly completed the two bar graphs.
 - (v) This was a slightly different type of question for candidates. When they realised what the question required many scored full marks. The most popular choice was to draw a pie chart and many candidates drew accurate and neat graphs to display the information. Less common graphs which were also acceptable were a divided bar chart and a pictograph. A line graph was not accepted as appropriate to show this data and a bar graph was not accepted because of the instruction to draw a different type of graph than the ones shown in the question.
 - (vi) This was a challenging question but was answered well by many candidates. The candidates conducting the fieldwork disagreed with the hypothesis but this was an incorrect conclusion. The candidate had to realise this and make the assertion that they disagreed with the candidates but agreed with the hypothesis. In explaining their conclusion many candidates used appropriate supporting data from the table.
- (b) (i) As in past examinations this question was often poorly answered. Sampling is a topic which is not well understood by many candidates. Many candidates did not appear to be familiar with sampling as a concept and wrote about other issues such as where they would use the questionnaire. Candidates need to be familiar with different sampling techniques which can be easily taught through practical exercises, for example applying different sampling technique with candidates in the School.
 - (ii) Many candidates found this question difficult. Most correct responses agreed that it was good idea to ask for first and second choices in order to get two sets of data in priority order, rather than just one which might be difficult to choose.
- (c) (i) Most candidates scored both marks by applying the formula and making a correct calculation.
 - (ii) Most candidates plotted their result accurately. The most common error was to misread the scale and plot the value at 42 rather than 44.
 - (iii) Most candidates recognised that the hypothesis was correct and provided supporting data. Many candidates also recognised the importance of jobs and income as positive impacts.
 - (iv) Candidates answered this question well if they recognised that the two negative impacts were those which would affect local people most because they would see or encounter these problems daily. A common mistake was made when candidates wrote about the causes of the problems rather than their impacts.

- (d) The final question was a good discriminator. It was answered well by candidates who were able to describe in detail the methodology of conducting a traffic survey. Other candidates wrote good answers focusing on questionnaires about the impact of traffic congestion, or described techniques for monitoring air pollution.

GEOGRAPHY

Paper 2217/22
Investigation and Skills

Key Messages

- Practical skills questions need to be completed precisely.
- Given data should be interpreted to show understanding
- In **Section B**, careful analysis should be backed up with evidence

General comments

This paper was comparable with that for the previous year, with the more difficult questions such as **Question 1(d)** and **Question 4(a)**, being balanced by the easier parts such as **Question 1(c)** and **Question 2(c)**.

In **Section B**, **Question 8** proved to be more popular than **Question 7** in the ratio of approximately 1:2. It was notable that candidates appeared to have a better idea of what was required for some of the longer answers in **Section B**. Omissions were less common than usual.

When describing patterns or trends, it is necessary to generalise to some extent. Candidates need to phrase their statements carefully and avoid overgeneralising, as illustrated particularly by **Question 2(b)**.

Comments on specific questions

Section A

Question 1

- (a) The map question began with asking for the six-figure grid reference for the motorway junction with the A7 road, and then the distance, by road, from that junction, to the sugar factory in 0097. Either 970962 or 970963 were acceptable answers for the grid reference. Most candidates had the general location correct. Some had put 1 rather than 0 for the third figure. Most were within the acceptable range of 3800 - 4200 m for the road journey. A few had a shorter distance, perhaps as a result of not measuring along the road.
- (b) Moving on to consider the location of the sugar factory, candidates typically pointed out the surrounding sugar plantations and the adjacent road. Many mentioned the town for labour supply and / or a market, though sometimes there was unnecessary detail about the services in the town and their benefits for the labour force. Some mentioned the reservoir and / or the water tank, while a few had this as a water hole, through misinterpretation of the key.
- (c) Most candidates had correctly located the relevant square and then listed six of the seven available services: school, church, district court, police station, hospital, village hall and marketing board. A few had located the junction of easting 97 with northing 97, but then had taken the square to the SW of this point.
- (d) The Grand River North West flows north, has variable width, tributaries, meanders, rapids and braiding and is crossed by a dam named as Municipal Dyke. Many candidates did tend to concentrate on the valley rather than the river itself. (Cliff was acceptable since many of these do appear to drop straight into the river). Others restricted themselves to human features so scored only for the dyke.

- (e) There was much scope here and many candidates picked up a lot of marks. In part (i) they had to identify the direction of the footpath from Roselyn Cottage: to the NW. In part (ii) they were invited to describe the route, including physical and human features. Many took a systematic approach, either from SE to NW along the path, or physical and then human. Physical features included steep slopes, river crossings, the mountainside, scrub / scattered trees and forest. A couple of candidates even noticed the descent of the spur into Les Guibies. Human features were fewer, but the sugar plantation and the water tank were often noted and some spotted the cane tracks and the cut lines.

Question 2

- (a) Most candidates correctly completed Fig. 1, with the data for Africa in 2000. Similarly most had correctly read from the graph to determine Latin America's population in 1950. Answers of 160 - 180 million were acceptable and most were right in the middle of this range. Some had omitted "millions" from their figure. The slowest growth was shown by the line with the shallowest gradient: Western Europe. About half had this answer while most of the rest had opted for USA, it being the lowest line on the graph.
- (b) Here candidates had to compare the population growth of India and USA, highlighting one similarity and one difference. Typically they pointed out that both were increasing but that India had a faster growth rate. Others noted that India showed a period of decrease. Some candidates tried to overgeneralise and thus made statements such as "they were the same to 1950", which were not correct.
- (c) There was plenty of variation in the population curve for China, and thus plenty of scope for scoring marks. A lot of candidates began by describing the initial increase to 1830, the stable numbers from 1830 to 1850 and then the decline to 1870, which gave them three marks without needing to go on to the increase after 1870, or the sharper increase from 1950. A more general approach did work here. Some candidates used the x axis labels and described the general trend for each period of 50 years. Since some of these years coincided with changes in the trend, it was possible to reach three marks from this approach.

Question 3

- (a) (i) Careful reading of the description in Fig. 2 enabled almost all candidates to identify bushes and grasses correctly in Table 1.
- (ii) Existing plants have responded to the moisture by sprouting new growth and by blooming. Most candidates had one of these points though not always both. Some had written about seeds growing rather than the response of existing plants.
- (iii) Depressions contain the most vegetation because they retain moisture. Many candidates had gone beyond simply selecting this phrase and had endeavoured to elaborate. There were some good answers showing understanding. A few had taken the word "depression" to mean a weather system and had written about the weather bringing rain.
- (b) Many candidates successfully completed Fig. 3. Most also realised that February and December would be the most likely months for the vegetation growth, these being within the period of potential rainfall.

Question 4

- (a) Candidates found this to be a difficult question and it was clear that some candidates were unfamiliar with the terms 'arable' and 'pasture'. Those who chose arable commonly mentioned run-off of excess irrigation water. Other possible points were the disturbing of the ground by machinery, the loosening effect of ploughing and the bare ground left exposed after the harvest. For the pasture option, candidates wrote about the effect of grazing, particularly overgrazing, and various ways of animals directly transporting material to the river, such as when coming to drink. Some wrote about the effect of clearing the land for pasture or arable farming, rather than movement of sediment as a result of agricultural usage.

- (b) Many candidates successfully labelled Fig. 5 to show erosion, deposition and the dam wall. Some had reversed the erosion and deposition labels, putting erosion in the reservoir and deposition in the river downstream of the dam. Candidates are reminded of the need to be precise with this type of question, either putting the letter over the top of the intended location or using an arrow to clearly indicate the position.
- (c) The majority of candidates referred back to Fig. 4, as instructed, and correctly selected straightening of the channel as the engineering method illustrated in Fig. 6. A few tried to describe in their own words, while several had found the answer on Fig. 4 and then written the heading above it. Many candidates realised that the river would have a faster velocity as a result of being straightened. They then went on to write more about changes to erosion and deposition, due to the loss of the meanders, rather than focusing on the movement of sediment. Some did realise that more / larger material would be carried, but some assumed there would be less sediment as there was no meander to be eroded.

Question 5

- (a) Candidates had little difficulty locating the motorway and then using the key to determine the traffic flow of 50 000+ in 24 hours. Similarly most selected intersection 1 as providing the least congested route into urban area B. The northern bypass, (a)(iii), was round urban area A. Some had taken the word bypass in a more general sense, and this had led to them selecting one of the other areas.
- (b) Urban area D is south-west of urban area B. Candidates then had to describe the variation in traffic flow along the direct route between these places. Most did this by quoting the figures for each section of the road, though “decreases 5 km from B and increases 2 km before D” was also an acceptable approach.
- (c) The two parallel roads at Y both provide a route from intersection 3 to intersection 4. Many candidates wrote that they were heading to different places because they were following the road of the same traffic flow level beyond the section in question. This also led to some writing about the bridge as a potential difficulty for vehicles. Valid answers included suggestions about the road surface, the speed limit and other restrictions, the width of the road, and the greater volume of traffic passing through on the motorway, compared with only local traffic on the other road.
- (d) Urban area C had the least vehicles entering in the 24 hour period. Many candidates answered correctly.

Question 6

- (a) Almost all candidates correctly completed Fig. 8, with crossed shading on Iowa. They then went on to describe the distribution of 10.1 - 15% employed in manufacturing. In general terms there were three main areas, with zones stretching from north to south occurring on the west coast, in the centre and, to a lesser extent, on the east. Most candidates mentioned the western area and also the central zone, for which naming Texas or Illinois was an acceptable alternative. Many also spotted the relatively small area of states in the NE. A few tried to describe everything in relation to the named states, but this did not really work as, apart from the mark for the central area, they were not able to make it clear that the other areas were some distance away from Texas / Illinois.
- (b) The majority of candidates correctly completed the graph in Fig. 9 to show 83 000 people employed in food manufacturing in Texas. Many also read from the graph that 46 000 people in Illinois were employed in transport equipment manufacture. A few made a mistake here with the scale and wrote 40 600 people. The ranking task in (b)(iii) caused little problem, with chemicals, furniture, paper and electrical appliances following on from the two given on the paper. Then finally in this section, the greatest difference between the two states was in the field of transport equipment. Most candidates correctly deduced this by comparing the relative heights of each pair of bars on the graph.

Section B

Key messages

- When answering Hypotheses questions that ask whether you agree or not, always give your opinion first before any supporting evidence. This will usually be Yes, No or Partially.
- When giving figures in an answer always give the units if they are not stated for you.
- Read questions carefully and identify the command word e.g. *Describe, Explain...*
- Check you are using the Resources that a question refers you to e.g. Table 3, Fig. 2.
- Take into account the marks awarded. Examiners do not expect you to be writing outside of the lines provided so do not write a paragraph when only two lines are given – this wastes time.
- If you have to write more than the lines allowed indicate this with a phrase such as (*continued on page 11*). This is very helpful to the Examiner in finding your answers.

General comments

Most candidates found this examination enabled them to demonstrate what they knew, understood and could do. The overall range of marks went from 0 to 57/60 – a similar wide range to June 2010 - with weaker candidates scoring on the practical questions, such as drawing graphs, calculations and diagram completions and those of higher ability scoring well on the more challenging sections requiring explanation and judgement especially regarding hypotheses. There were few scripts scoring less than 15/60 with the bulk between 25-40 and a pleasing number scoring over 45/60.

There is less general advice to be given for areas for improvement with this paper as with others. As there are no choices to make, it is difficult to miss sections out – though candidates do - and there were no reports of time issues as the booklet format does not allow or encourage over-writing of sub-sections. Most points for teachers to consider, when preparing candidates for future Paper 42 questions, relate to misunderstanding or ignoring command words and the use of equipment in fieldwork. Particular questions where candidates did not score well also often relate to them not fully reading the question. Such failings mean that some candidates do not obtain a mark in line with their geographical ability and is an area that Centres should work on.

Centres need to realise too that, although this is an Alternative to Coursework examination, candidates will still be expected to show that they know how fieldwork equipment is used even if they have only limited opportunity within the Centre. **Question 1** required candidates to have experience of a transect line, systematic sampling, using equipment to measure infiltration rates and using a quadrat to measure vegetation cover. **Question 2** required candidates to have experience of devising and asking questionnaires, as well as drawing dispersion graphs and pie charts.

Comments on specific questions

Question 1

- (a) The matching exercise was done well by most candidates. A few mixed up the links for the shallow roots and large leaves but otherwise the vegetation adaptations were well understood. In some cases candidates did not clearly show from which box the link went from or to.
- (b)(i) Recording the data at more than one site was to ensure there was a wide range and to eliminate the chance of an anomaly so the test could be fair. Candidates need to be aware that “to be accurate” or “better results” are not sufficient responses. Accuracy could be incorrect at all five sites so would not lead necessarily to a more accurate average or better comparison.
- (ii) Using a transect line allows candidates to easily measure and locate the distance required between the sites in a systematic way removing bias and candidate choice. Although many candidates gained credit for their answers, too many gave vague ideas such as “makes it easy to find”, “makes it quicker”.

- (c) (i) The three pieces of equipment were illustrated in Fig. 2. Most candidates gained three marks here. The best answers referred to digging the hole and putting the cylinder into it, then pouring 1 litre of water in and using the stopwatch to time the flow until the water was all absorbed. It was important to mention the part played by each piece of equipment e.g. “timing the infiltration rate” should refer to the stopwatch. Weaker answers did not see the sequence through by only referring to one or two pieces of equipment. They also mentioned digging the hole in the ground (but not putting the cylinder in it) pouring in the water (but not the measured amount/1 litre) and timing the infiltration (but not mentioning the use of the stopwatch).
- (ii) Almost all candidates correctly chose C showing good judgement of which area contained most vegetation types.
- (iii) Again almost all candidates chose Area 3 in Site C recognising where the measurements were taken.
- (iv) There were some excellent demonstrations – in several ways - of how to work out the average infiltration time. The most popular answers ended with $181/5$ which calculates out to 36.2 seconds for both marks. A few candidates struggled to use the correct figures – some used other sites i.e. A and C instead of B – a clear example of not reading the question carefully.
- (d) (i) Plotting the three graphs was well done by most candidates. Good skills were shown in finding the correct data on Table 1 in the Insert and then translating it into the graphs on page 4; these manipulative skills deserved credit. The best answers carefully plotted 50 and 44 and joined the line graph from the 3rd to the 5th point carefully. Almost all plotted and shaded the bar for a mark and also could plot 20 and 43 with the correct shading on the ground cover graph. The minority of weaker answers did not always plot the 44 plot in Area A accurately and did not draw a smooth linking line. On the Area C ground cover graph some plots were incorrect and shading either the wrong type or it did not fill the divided bar graph to 100%.
- (ii) Candidates needed to look and think clearly at Hypothesis 1 and the nature of the variables given. There was some confusion between the differences in infiltration rates and infiltration times to be linked with vegetation types and vegetation cover for example a high rate of infiltration means a short/low infiltration time and vice-versa. Understanding these differences was critical to making correct judgements on the hypotheses. Hypothesis 1 was incorrect and correctly judged so by most candidates. Once they had deemed the hypothesis incorrect, evidence was needed from Table 1 and Fig. 3. It should be noted that there is usually 1 mark for stating what the correct hypothesis would be i.e. “there are more types of vegetation where water infiltrates the ground more quickly.” This could be supported with data comparing Site A and C where the average information clearly went against the original hypothesis e.g. Area C had faster infiltration rates and a higher number of vegetation types than Areas A and B. In these answers it is important to compare the areas rather than choose individual sites within the areas which could be chosen to illustrate several different aspects of the hypothesis. Using the overall average data, it was clear that the hypothesis was incorrect and no credit could be given for any candidate agreeing with the hypothesis based on one or two anomalous individual sites that supported that. Some candidates wrote about vegetation cover instead of type; that was more relevant to (iii).
- (iii) A number of candidates stated whether they agreed or disagreed with Hypothesis 2 despite the question stating that the candidates had already agreed. Credit was awarded for candidates looking at the average ground cover and infiltration times and using data, usually from Area C, that demonstrated where the lowest infiltration times were, with where the largest vegetation cover was. They often gave data from Area A as the converse. Weak answers just selected individual sites or just listed data without making any judgements. A few referred here to vegetation types instead of cover; more relevant to (ii).
- (iv) Most candidates could state that vegetation or its roots absorbed water thereby increasing the infiltration rate. It was a minority that also noted that roots made holes in the ground creating gaps to increase the permeability of soils and so increase infiltration.

- (e) The key to success on this final part of **Question 1** was to refer back to Fig. 1 as instructed and consider the implications of the different human impacts on factors that would affect infiltration rates. Candidates should have considered the activity in Areas A, B and C and then suggested how that activity might affect infiltration rates. Many candidates chose to describe the activity in Fig. 1 without going on to state its influence so answers using Area A, for example, listed the people visiting and the car park but rarely went on to suggest that trampling the ground would compress the soil slowing down infiltration or the car park would cause an impermeable surface. In B the deforestation and replanting was mentioned but only a few candidates linked this to contrasting infiltration rates. Most gained 1 mark for recognising that the untouched rainforest in Area C should create a faster infiltration time. Here using the resource provided was crucial to gaining high marks.

Question 2

- (a) (i) By far the majority of candidates decided that asking the question “where do you live?” would be too embarrassing, an invasion of privacy or personal information that might lead to theft or criminal activity all of which would be awarded 1 mark. The second mark was for recognising that the question in itself was irrelevant to the hypothesis or that the interviewee may not have come directly from their home to shop e.g. work in the Centre or there as a tourist. Fewer candidates gained the second mark.
- (ii) Systematic sampling is still not understood by the bulk of candidates. Over half alluded to regular intervals/ordering or gave examples such as “one in every ten” people/houses but too many said it was random or gave answers loosely linked to sampling e.g. you give everybody the same questions or ask the same number of men and women.
- (iii) The advantages of systematic sampling are that it avoids bias/candidate choice and thereby ensures a fair test but only the best candidates could write this. Others referred to it being “easier”, “quicker” “more accurate” all of which were far too vague for credit.
- (iv) Whether candidates chose to say “Yes” or “No” was not the issue here; what mattered was that they could justify that choice by referring to the sample number, its likely range of customers and its appropriateness for three different shopping centres. The best candidates referred to the wide/representative range of answers possible, age/gender issues and the differing size of centres in justifying their choice. Weaker answers just said yes or no and that it would be enough or it was too many or should be over 100 (unrealistic) without any explanation for their view. A few thought 30 was far too many and would take too long. Some thought 30 would pose a problem for calculating percentages and suggested 25, 50 or 100 to make this easier.
- (b) (i) There were several variations of formulae demonstrated but the key was to end up with $46/30$ and then give an answer of 1.53 km or 1.5 km. Most candidates knew how to do this and demonstrated it well but let themselves down by not giving the km units after the final figure. It is important to note that, if units are not given on the answer line provided, candidates will be expected to provide them for credit. A number of candidates gave fulsome calculations that included all the distances where 0 shoppers went taking up an enormous amount of space.
- (ii) By far the majority gave 2 as the correct answer here; a small number gave 1 or 4 and a few missed it out completely.
- (c) (i) Overall the plotting on the dispersion graph was quite well done though there were some strange plots from candidates who had either not seen one before or could not work out how to plot the points from the exemplar graphs given. One common error was plotting the points on the 1st and 2nd vertical lines instead of the 2nd and 4th lines. Another was just plotting 30 on the 4th line when, to show two people, it also needed a point on the 2nd line at 30 too. Some candidates used the other graphs to plot their points.
- (ii) Most candidates correctly agreed with Hypothesis 1. They then stated that the CBD was the largest centre and gave data to support the view that people travelled further to the bigger centres. The common data given was some people travelled 30 km to the CBD whereas other people travelled far less distances to the other two. Some used the average distance comparison with data to back up the hypothesis. A few disagreed with the hypothesis because they counted the larger number travelling shorter distances not the furthest distance as required. A few did not make it clear that the CBD was the biggest centre so were restricted to three marks.

- (iii) There were many sensible suggestions here with buying high-order goods, comparison goods or specialist/luxury goods among the most frequent responses. Many put a wider range/choice and also gave examples of other reasons such as to go to the cinema or bank or child-minding facilities along with shopping too. A number referred to better quality goods which is not always true – the quality of any good can be the same albeit in different shopping centres. Some mentioned going for a day out or to see friends which may be true for teenagers but is less so for the bulk of people travelling further to shop.
- (d) (i) The pie chart was well done by most with the pie of 60 degrees being drawn fairly accurately in the bottom half of the semi-circle and the remainder being shaded in correctly for a second mark. Those candidates that drew the 60 degree line from the top of the semi-circle still gained both marks providing they shaded the slices in the correct order from the key.
- (ii) Almost all candidates could agree with Hypothesis 2 and justify that choice by quoting data from the total for cars or from the number visiting the CBD or secondary centre. A number used the word “most” when they meant “the most common” or the “highest” of the choices for which they were not penalised but it is worth Centres taking care to ensure candidates understand that “most” would usually mean more than half rather than the most common number.
- (iii) Distance/proximity were common answers here; whether the shoppers could afford to own a car or the cost of petrol were other responses. The amount being bought and its bulk and access to public transport were other acceptable answers. Other factors including age and environmental awareness were also seen. It is important to stress that one-word answers are unlikely to gain credit in this kind of question as indicated by the two lines allowed for each answer. A small number of candidates just wrote single words such as Weather, Transport, and Time without elaboration. The Examiner needed to know how these factors could affect the method of travel to shopping centres.
- (e) The “sphere of influence” is clearly mentioned in the syllabus and is a popular topic for Centres that carry out fieldwork. Consequently it would be expected that candidates would know what the term meant and could give an idea as to how it could be found. This was often not the case. Only a small number of candidates knew what the term meant and could give some ideas as to how to obtain it. The key to identifying this was to interview shoppers at different shops; find out where they lived and then plot these points on a map and join up the furthest points to identify the “sphere of influence” of each shop. Many candidates suggested asking about distance travelled (already done in the investigation) or plot the average distance in isolines (not possible without a home location) and the average distance is not the furthest which defines the sphere of influence. For those who did not know what the term meant, suggestions such as note down the bags that came from certain shops, ask people in their houses, check how they get there and what they buy, were all examples of irrelevant questions for the sphere of influence. This is a common geographical term which has been tested on Paper 4 before and candidates are expected to know what it is and how it can be found in fieldwork.

GEOGRAPHY

Paper 2217/23
Investigation and Skills

Key Messages

- Practical skills questions need to be completed precisely.
- Given data should be interpreted to show understanding
- In **Section B**, careful analysis should be backed up with evidence

General comments

This paper was comparable with that for the previous year, with a balance of more difficult questions, such as **1(d)**, **1(e)**, **2(b)** and **3(b)**, and easier parts, such as **2(a)(i)** and **(iii)**, **3(a)** and **Question 5**.

Choice of question in **Section B** was fairly evenly split, though there was a tendency for **Question 7** to be more popular with the stronger candidates.

Comments on specific questions

Section A

Question 1

- (a) Many candidates were able to locate the wide tarred roads in Mvurwi and give the grid reference of the square: 7016.
- (b) Services questions are usually relatively easy, but this one was not as there were only five to select from: sewage, hospital, reservoir, post office and police station, with the latter two being quite difficult to spot. Two services were needed for each mark, so few candidates scored two marks but most got one mark, often for copying the line of "police station, post office, post and telegraph agency" from the key.
- (c) Here candidates had to identify the features shown on Fig. 1. A was a power line. Some looked at the position of A on the map, and went for dam, rather than considering the feature drawn on Fig. 1. B was a dip tank. Here some said "bridge". C was the settlement of Welmode. Some put the type of settlement rather than naming it. The height at D was 1508 metres. The unit of measurement namely metres was often missed. This was required since the units were not specified by the question. R was a rapid. Some named the river rather than the river feature.
- (d) Answers within the range 500 - 650 m were accepted for the length of the Pembi Dam wall. To describe the direction in part (ii), two comments were needed: the overall direction and the direction of the middle section. Pembi Dam runs NW to SE (faces NE), except for the middle section which runs NE to SW (faces SE). Some candidates described the direction of the dam in relation to other places.
- (e) On the cross-section, the orchard / plantation was between 26 mm and 30 mm from the left axis, while the river was between 17 mm and 20 mm. Some candidates were unsure of how to indicate the positions. Attention should be drawn to the example on Fig. 2.

- (f) The area of Fig. 3 has no obvious settlement but careful study should reveal mining, a track / cut line / game trail, a road, cultivation, an orchard / plantation and a dam, all evidence of human activity. Many candidates found at least some of these. The highest point in the area is in 6117, with anywhere above the 1660 m contour being acceptable. Most got this correct. The medium bush was to the west of the area. Some candidates had marked the sparse bush instead.

Question 2

- (a) Most candidates recognised the oxbow lake surrounding village C, but many were not really sure why water supply at A would be purer than at B. Possible answers here included the fact that the water comes from the ground at A, so is filtered, while B is downstream of both village A and potential grazing land. Most candidates were able to suggest two difficulties in building a road between A and D. Most chose steep slopes and the need for a river crossing. Marshy ground around A would also have been acceptable.
- (b) Candidates found part (b) difficult and many resorted to repeating advantages at more than one site. Thus water supply was applicable to A, B or C, but could only be used once. An alternative advantage at A would be the flat land, while for B there is high ground above the floodplain and its south facing aspect making it a sunny site. C could be defensive, while D is also above the floodplain and shaded from the sun (which was fine provided the sun had not been used as a contradicting advantage at B). D also has trees and thus building materials, though some thought that the wood could be sold. Some candidates picked up on the idea of a pure water supply for A, from the information given in part (a)(ii).

Question 3

- (a) Careful comparison of Fig. 5 and Photograph A enabled most candidates to insert some kind of shoreline into the foreground, along the bottom of Fig. 5. The fishing boat label could be on any boat except the passenger ferry, while rice cultivation was on any of the flat land adjacent to the river. Most candidates completed Fig. 5 successfully.
- (b) The bare ground / deposition in the foreground of the photograph or the location of the building on higher ground / stilts or the long gangway out to the boat jetty or the fact that rice is planted into flooded fields could all be used as evidence for a previously higher river level. Candidates found this difficult, particularly as two pieces of evidence were needed.
- (c) There were many possible answers for part (i) including soil, labour, machinery, seeds (inputs) and planting, weeding, fertiliser application, harvesting (processes). Most candidates had suitable answers. They found part (ii) more difficult. Climate data was given in Fig. 6 so it was necessary to consider this in relation to rice cultivation. High temperature and high rainfall are both good for plant growth, while the monsoon climate would allow for seasonal flooding of the fields.

Question 4

- (a) Using the scale on the left of Fig. 7, it can be deduced that the canopy layer is between a lower boundary of 22 - 24 metres and an upper boundary of 35 - 36 metres. Many candidates were in the right range. In part (ii) there were some interesting descriptions of the trees in the understorey layer, many of which did get across a general idea of the pointed shape.
- (b) Most candidates completed the graph in Fig. 8 correctly.
- (c) To complete the paragraph, candidates needed to say that July was the driest month, with 50 mm of rain, that the annual temperature range was 3°C and that the trees of the emergent layer had to be able to withstand strong winds. The first three points could be deduced from Fig. 8, while for the last it was necessary to refer back to Fig. 7. Many candidates scored three here, the most likely error being the temperature range. Some calculated the average.

Question 5

- (a) Most candidates correctly completed Fig. 9, for which there was one mark for plotting the bars and a second for correct positioning and shading. Bahamas and Jamaica both had 140 000 visitors in May, while the top three months in Jamaica were March, July and December. Again candidates had little difficulty with these.

- (b) Tourist arrivals to Cuba vary greatly through the year so there were plenty of ways to score four marks. Generally there is an increase to March, the highest month, then a decrease to June, an increase in July, and then a further decrease to September, the lowest month, before an increase to the end of the year. It was not necessary to quote figures from the y-axis though care was needed when reading the x-axis, due to the occurrence of more than one month with the same initial letter.

Question 6

- (a) Candidates were asked to describe the location of the countries on Fig. 10. Some referred to the continents; others made use of the equator and the tropics and described location in relation to these. Candidates should note that “an area below the Tropic of Capricorn” would be better described as “an area south of the Tropic of Capricorn”.
- (b) Five countries featured on both Fig. 10 and Fig. 11. Relatively few candidates had realised what was needed here. Many simply counted the countries on Fig. 11.
- (c) From Fig. 12, lack of rain or cyclone would be natural causes of food shortage, while war or cyclone could cause shortages due to distribution problems. Many candidates were correct here. Refugees can cause food shortages because they represent an increase in population. This was not widely understood. Sickness can cause food shortage if many adults are too sick to work the land. Some candidates made mention of this while others had read the question in such a way that they believed the sickness to have been caused by the food.

Section B

Key messages

- When answering Hypotheses questions that ask whether you agree or not, always give your opinion first before any supporting evidence. This will usually be Yes, No or Partially.
- When giving figures in an answer always give the units if they are not stated for you.
- Read questions carefully and identify the command word e.g. *Describe, Explain....* For example **Question 2(b) (v)** where candidates ignored the command ‘Give two reason why...’.
- Check you are using the Resources that a question refers you to e.g. Table 3, Fig. 2.
- Take into account the marks awarded. Examiners do not expect you to be writing outside of the lines provided so do not write a paragraph when only two lines are given – this wastes time.
- If you have to write more than the lines allowed indicate this with a phrase such as (*continued on page 11*). This is very helpful to the Examiner in finding your answers.

General comments

Most candidates found this examination enabled them to demonstrate what they knew, understood and could do. The overall range of marks went from 0 (which was an outlier) to 54 out of 60 – a similar range to previous years. Weaker candidates scored well on the practical questions, such as drawing and interpreting graphs and making calculations, and those of higher ability scored well on the more challenging sections requiring explanation and judgement especially regarding hypotheses. Overall there was little difference in the standard of answers between **Questions 1 and 2**.

There is less general advice to be given for areas for improvement with this paper compared with others. As there are no choices to make, it is difficult to miss sections out, although some candidates omit graph completion questions which are usually ‘easier’ to answer. A few candidates did not attempt the final part of **Question 2** which may indicate a shortage of time. Some candidates do write too much in some sub-sections. They should be encouraged to answer more succinctly and perhaps give more thought to their answers. Most points for teachers to bear in mind, when preparing candidates for future Paper 43 questions, relate to misunderstanding or ignoring command words and the use of appropriate fieldwork techniques. Particular questions where candidates did not score well also often related to them not fully understanding the question. Questions which require candidates to develop their own hypothesis or investigation methodology are often answered quite poorly. This is an area in which Centres could do more preparation with candidates.

Centres need to realise that, although this is an Alternative to Coursework examination, candidates will still be expected to show that they know how fieldwork equipment is used and appropriate fieldwork techniques even if they have only limited opportunity for fieldwork within the Centre, for example **Question 2(b) (ii)** required candidates to describe how to measure the angle of slope.

Comments on specific questions

Question 1

- (a) (i) Most candidates showed good knowledge of the Stevenson Screen. Many scored full marks. Two misconceptions were that the white colour is to attract heat and the position above the ground is to avoid animals.
- (ii) There were many incorrect readings which revealed that candidates did not know the correct way to read maximum and minimum temperatures. Incorrect responses included reading the level of mercury on both scales, and reading from the top of the marker. It seemed that some candidates had never used a maximum-minimum thermometer. They could be made familiar with using such instruments by making weather records in School.
- (b) (i) Candidates received some help in the form of five possible answers. Most chose the correct alternative. This question would be more challenging if candidates were asked to give a definition of relative humidity.
- (ii) The vast majority of candidates followed the guidance of the worked example to work out the correct answer.
- (c) (i) Most candidates scored both marks, with reference to accuracy, instant reading, portability, ease of reading the device and less chance of making a mistake. The sketch allowed them to reach these conclusions whether they had actually used the device or not.
- (ii) Many candidates failed to gain credit because they merely suggested repeating the readings with the same instruments. Some candidates, however, did realise that traditional instruments could be used to check the digital ones. Other less common acceptable answers were to use a second digital instrument or check the results with other candidates.
- (d) (i) Whilst many candidates were successful in making an accurate measurement there were also a minority of candidates who were unable to use the scale to make a fairly simple measurement.
- (ii) Most candidates completed this simple task correctly. Occasionally site J was chosen in error.
- (iii) Most candidates correctly agreed with the hypothesis and supported their decision with evidence from the data table. Many candidates included anomalies as well as supporting data.
- (iv) There were many good answers which referred to shade, shelter and the impact of different surfaces and the concrete buildings. Few candidates referred to aspect and there were irrelevant references to wind direction and altitude. Weaker candidates tended to focus on the buildings with reference to heaters, air conditioning and heat from people.
- (e) (i) Most candidates plotted the information correctly, although a small minority did not attempt the question.
- (ii) Most candidates showed the correct calculation, although a common mistake was to use the figures for all twelve sites.
- (iii) This task was again done correctly by the majority of candidates, although a small percentage also omitted this question.
- (iv) Most candidates understood the task and were able to explain why the candidates had disagreed with the hypothesis. They supported their conclusion by referring to differences in relative humidity on the same surface, and to the same relative humidity on different surfaces.

- (f) (i) Most candidates did not choose an appropriate hypothesis. Their hypotheses usually referred again to relative humidity or other measurements which involved the use of multiple Stevenson Screens or moving them around. Many candidates stayed with the task of measuring temperatures on different surfaces, ignoring the fact that they only had one maximum-minimum thermometer. The question should have led them to an investigation of temperature change over time.
- (ii) Candidates could still score marks even if they had not got a suitable hypothesis. The better answers described how readings should be made on a regular basis and at the same time of day. They also gained credit for explaining how readings are taken on a maximum-minimum thermometer. Weaker answers continued with the idea of placing thermometers at different locations and reading them all at the same time, which was not relevant to this question.

Question 2

- (a) (i) Nearly all candidates correctly calculated the total area of the farm.
- (ii) Also candidates successfully worked out the percentage of land used to grow barley.
- (iii) Many candidates scored marks by stating that the bar graph was good to read off numbers or amounts or area, whilst the pie graph clearly showed the share or percentage of land use.
- (b) (i) Most candidates gained two marks for naming altitude, latitude or longitude. A small number quoted figures from the GPS reading which was not the question instruction.
- (ii) This question was poorly answered by many candidates, some of whom did not appear to be familiar with an appropriate measuring technique. A minority of candidates gave detailed answers based on their own fieldwork. They included the name of equipment such as a clinometer with a description of how it should be used. Other candidates attempted to describe how an angle is measured by using a protractor and string which is not acceptable as a fieldwork technique.
- (iii) Most candidates answered the question well. Common solutions which were suggested included asking the farmer or teacher, taking a photograph or sketch, and researching in a book or on the Internet.
- (iv) The question proved to be a good discriminator. Many candidates gave correct explanations for the conclusion reached by the candidate. Many answers included evidence which referred to land use at different heights and on different angles of slope. Only the best answers included consideration of both height and slope. Weaker answers were characterised by vague reference to crops and animals rather than specific types, and merely described land as getting higher or steeper with no supporting figures.
- (v) There were many vague answers which did not apply knowledge which the candidates would have learned about farming. Answers were typically vague stating that crops cannot be grown if land is steep or high. However, there was explanation of why this was so, which was the focus of the question. Few candidates included ideas about higher rainfall, stronger winds, or thin soils.
- (c) (i) Most candidates labelled both axes correctly. A small number included figures or units such as metres or kilogrammes, or missed 'per year' from the axis label.
- (ii) Both values were usually plotted accurately. A small minority omitted the question.
- (iii) A higher proportion than usual did not answer this question, presumably because they did not know what a best-fit line is. Most candidates who answered the question identified the negative correlation and drew the line within the range of tolerance. The most accurate lines curved but straight lines were accepted. As usual in this type of question a few candidates joined the crosses together.
- (iv) This question was well answered. Most candidates realised that the hypothesis was incorrect and some referred to the best-fit line which they had drawn as supporting evidence. Better answers then stated what the alternative hypothesis should be. Finally paired data was well used to support the answer.

- (d) Most candidates understood what was meant by ‘inputs’ and could identify at least one input. The most common suggestions were money or capital, machinery and fertilisers. Other inputs such as seeds, land, labour or water were not credited as they could not be used to measure the intensity of farming.
- (e) Candidates find this type of question difficult, but it is a good discriminator. Good answers were based on the use of more transects or farms or hillsides to see if the results of this fieldwork were typical of hillside farming in general. Another good approach was to repeat the fieldwork during different seasons to see if this made a difference to the results. In contrast weaker answers suggested repeating the investigation to see if results were different, and using the Internet for more research, but not stating what the focus of the research would be.