

# GEOGRAPHY

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Paper 2217/12  
Paper 12

## Key messages

In order for candidates to perform well on this paper they needed to be able to:

- ensure that the examination rubric is followed correctly, answering three questions, one from each section.
- select the three questions with care. Read all of the questions through carefully and study the resources provided with them before making a choice.
- answer all parts of the three chosen questions and ensure that sub questions are not missed. This particularly applies to the last part of each question that carries seven marks.
- read the questions carefully. If it helps to do so, underline command words and words which indicate the context of the question.
- respond in the correct way to command words used in questions, in particular 'define', 'describe', 'explain' and 'compare'.
- identify the correct focus specified in the question stem, e.g. causes or impacts, solutions to problems or how successful they are, features of an ecosystem or conditions required for its development.
- ensure that they respond correctly to key words and learn the meanings of geographical words and phrases in order to be able to define and accurately use geographical terminology (e.g. employment structure, hierarchy of settlement). When defining words or phrases, candidates should not simply repeat a word or words as part of their definition.
- understand how to use comparative language, with statistics to support their answers, when a question requires it.
- use the mark allocations and answer space provided in the question and answer booklet as a guide to the length of answer required and the number of clear points that need to be made.
- write in detail and develop ideas in five mark and seven mark questions where development of ideas is credited.
- write as clearly and precisely as possible avoiding vague, general statements.
- write in full wherever possible, especially in the final two parts of each question, ensuring that ideas are developed with the correct focus.
- perform basic skills using graphs, photographs, diagrams and maps of various types, referring to them in an appropriate way to support ideas rather than directly lifting material from them without any interpretation.
- ensure that trends and patterns from graphs are qualified where required – for example, 'rapid decline' or 'fluctuating amounts'.
- be able to describe physical geography processes in a clear sequence, making appropriate use of key geographical vocabulary.
- have a range of case studies so that appropriate ones can be chosen for the topics tested.
- ensure that each case study used is at the correct scale. Both the syllabus document and each question identify the scale required for these.
- avoid writing a long introduction to any question, including unnecessary background material at the expense of addressing the main focus of it.
- ensure that an element of place specific detail, however, is included where required.
- when using the extra pages at the back of the question and answer booklet, indicate that the answer is continued and clearly show the number of the question on the extra page. Continue answers on the specified continuation pages rather than elsewhere in the answer booklet.

## General comments

The examination was considered to be appropriate for the age and ability range of candidates and it differentiated effectively between candidates of all ability levels. The most able and well prepared candidates performed well across the paper and some excellent, well expressed Geography was seen. Most candidates were able to make a genuine attempt at their chosen questions. However, a large proportion of weaker candidates found it difficult to interpret questions and write relevant answers. Some found the case study questions challenging and some did not attempt them at all. Candidates did seem to have sufficient time to complete the paper, however there were significant omissions from some candidates.

Most candidates followed the rubric by selecting a question from each section as required. However, some rubric errors were seen and a reminder to candidates before the examination to answer one question from each section would be helpful. Some weaker candidates attempted any parts of questions that they could answer from all six questions rather than selecting one question from each section whilst some answered three questions but did not select one from each section as instructed in the rubric.

The presentation of answers from candidates was variable, though almost all were legible.

**Questions 1, 3 and 6** were the most popular questions on the paper however there were some good answers seen to all questions, including those requiring extended writing. This particularly applies to the case studies on population policy, hazards created by a volcano, why people live in a coastal area and the impacts of a transnational corporation. Stronger responses in these case studies were characterised by developed ideas with some appropriate place detail. Weaker responses tended to be generic development of ideas with little place detail to support them, while others just used simple, brief statements. In some cases, a significant amount of detail included by candidates was not relevant to the question being asked, especially where long introductions occupied much of the answer space. This particularly applied to **Question 6** where over long introductions focused on general information about the chosen agricultural area rather than explaining how the land use is influenced by natural factors.

Case studies require place specific information to allow access to the highest level. This requirement can vary between questions –a country (**Question 1**), a volcano (**Question 3**) or a town or city (**Question 2**). Some candidates do not carefully consider their choice, limiting the credit their response can be awarded through inappropriate choices, for example, choosing a country rather than an urban area or vice versa, or naming a country rather than a volcano. Where an 'area' is required, (such as in **Question 4** and **Question 6**) choosing a country usually tends to be unacceptable as this is likely to be at too large a scale.

The following comments on 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 a popular question and attempted by many candidates.

- (a) (i) Most candidates defined the term using a variety of acceptable ways.
- (ii) Nearly all candidates correctly calculated the natural population growth rate correctly.
- (iii) Most correct answers included ideas such as low birth rates, contraception, education about and availability of family planning, working women and attitudes to family size. A common misconception was to attribute population decline to reasons which cause high death rates in LEDCs. The Hungary birth and death rates in Fig. 1 clearly indicate that is not the case.
- (b) (i) Most candidates recognised the more rapid fall in infant mortality rates in Bangladesh and many referred to the fact that Bangladesh had the higher rates before 1991 and Pakistan after 1991. Many accurately used statistics to show comparison though some listed statistics with little or no interpretation. Candidates should be aware that some degree of precision is required in response so statements such as 'Pakistan was just below 60 in 2015' are not applicable. The use of descriptive terms such as 'the infant mortality rate of Pakistan was halved between 1980 and 2015' is acceptable as it is regarded as interpretation.

- (ii) There were many good answers which included four ideas and gained full credit. Some responses did not show an understanding of the word 'mortality' and wrote about the reasons for high birth rates.
- (iii) This question differentiated effectively and there were some excellent, detailed answers seen with ideas relating to families having many children to replace those who die, for children to work on the farm or earn money in some other way, and take care of their parents in old age. A common error was for candidates to focus on other reasons for high birth rates, such as lack of contraception, missing the significance of 'high infant mortality' in the question.
- (c) There was the full range of responses seen to this question. The majority of responses were about China, however, there were other examples such as Singapore, France and Russia. Good answers were seen to all chosen case studies, however there were also large numbers of candidates who did not get beyond level 1 as they did not develop their ideas and/or wrote about a limited number of ideas. Stronger responses referred to several ideas (e.g. incentives/rewards, punishments/threats and exceptions as appropriate) and developed their ideas. Some candidates described the consequences of the policy which was not required, indeed some focussed entirely on an evaluation rather than including any description and gained little or no credit.

## Question 2

Relatively few candidates answered this question and in some cases it was answered by weaker candidates or rubric error candidates – many of the well prepared candidates opted for **Question 1**.

- (a) (i) The majority of responses to this question were weak. The most common answers referring to a village or small population rather than defining the word 'rural' by reference to the countryside.
- (ii) While there were some valid observations many simply gave value judgements about the settlement rather than describing the characteristics of the houses. The most common correct observations were that the houses shown were small or single storey.
- (iii) A few candidates referred to the base of the pyramid, however few other valid ideas were seen and it would appear that many of the candidates were not familiar with the concept of a settlement hierarchy
- (iv) This question was answered strongly by the majority of candidates. Some candidates did repeat rural push and urban pull factors – for example, lack of jobs in the rural area and more jobs in the urban area. Some candidates made quite vague reference to ideas such as quality of life, standard of living, services, and opportunities without giving more specific detail about these ideas – for example, better education or more access to healthcare.
- (b) (i) Most candidates correctly identified the settlement patterns.
- (ii) This differentiated well with most candidates at least recognising the influences on settlement shown in the maps whilst more perceptive candidates were able to fully explain the reasons for the settlement patterns.
- (c) There were a few excellent responses seen to this question where responses focused on a good case study, often one which was local to them, enabling them to give a range of developed ideas, along with appropriate place detail. In contrast many candidates wrote simply about migration into the city and included little detail, other than reference to employment.

## Question 3

This was much more popular and, generally, was answered better than **Question 4**.

- (a) (i) There were a number of accurate definitions however some candidates did not include the idea of the focus being 'below the surface/underground' thus not making clear the difference between the focus and the epicentre.
- (ii) While most answers were correct, there was a variety of incorrect responses for both depth and strength, suggesting perhaps that candidates were not able to use the latitude and longitude coordinates. A few candidates gave single figure answers rather than the range shown by the key.

- (iii) This was generally answered well with responses contrasting the number of earthquakes and depth of foci, often through statistics. Also, many recognised the similarity in strength, again often in data form.
  - (iv) Many candidates correctly referred to the importance of New Zealand's location at the plate boundary and the relative movements of the plates. Fewer candidates elaborated to gain further marks by referring to the sequence of processes which result in earthquakes.
- (b) (i) Most candidates made the decision that to some extent the statement was true, many also recognised the fluctuating pattern or described increases and decreases over time. However, many candidates did not differentiate between the 6–6.9 and the 7.0+ categories and so could not gain credit for statistics.
- (ii) This question differentiated well with high scoring responses showing good knowledge of a familiar topic. Many referred to ideas about soil fertility, jobs in tourism, family, emotional ties, extractive industry and geothermal power. Some weaker responses did not develop ideas of 'minerals' and 'tourism' sufficiently to gain credit.
- (c) This question also differentiated well and some high quality responses were seen. Many different volcanoes were chosen as the case study with Mount St. Helens, Etna and Pinatubo being particularly popular choices. Some candidates went into detail about a single hazard rather than a range of hazards, however, the most effective answers developed their ideas by linking the stated hazards to their specific effects. A few candidates incorrectly focussed on an earthquake but gained level one credit for common effects. Others limited their mark by naming a country rather than a volcano as required.

#### Question 4

This question was far less popular than **Question 3**.

- (a) (i) This was generally correctly answered.
- (ii) Candidates who interpreted the map well typically gained credit for describing the distribution as 'near the coast' and in the 'south of the country'. Weaker responses struggled to make any valid descriptive points and very few used the latitude or longitude lines effectively in their descriptions.
- (iii) Responses to this question were generally weak and there were lots of vague ideas about roots, creatures and mud. Candidates need to be specific and use geographical terminology wherever possible, for example by referring to saline water (halophytes), between high and low water mark, prop, aerial and salt filtering roots, salt excreting leaves, etc. General references to lots of plants and high biodiversity could be referring to many different ecosystems.
- (iv) Many candidates scored well on this question and were able to identify a range of specific ideas, relating for example to depth, water clarity, sea temperature and wave action. This question demonstrated good knowledge recall by well-prepared candidates, though others did little more than guess or wrote with insufficient clarity.
- (b) (i) Answers varied in quality and accuracy. The main correct ideas seen were soft rock, slumping, the lack of protection against waves and a lack of vegetation to consolidate the cliff. A common misconception was that wind erosion was an important factor.
- (ii) This was another good discriminating question. While all options were selected Option C was the most common choice, and candidates typically explained that it would be strong and resistant to erosion, and therefore long-lasting. The highest quality answers also justified their choice by explaining why they had rejected the other two options, considering the disadvantages of each of them.
- (c) Candidates chose many different examples, some being local ones which enabled them to include place detail with confidence. While there were some excellent wide ranging responses weaker candidates simply focussed their answer on tourism with little development of ideas such as industry, port or fishing. As in **Question 3(c)** some limited their mark by naming an entire country rather than an area of coastline.

### Question 5

This was not as popular as **Question 6**.

- (a) (i) Many candidates plotted the employment structure correctly though some made the error of plotting three separate points on the three axes. There were also a significant number who omitted the question.
- (ii) Although most answers were correct a significant number mixed up photographs D and F.
- (iii) While there were some high quality responses many candidates did not answer this comparison question well. Many made statements or gave statistics which were not by themselves comparable and left it to the examiner to draw them together and make the necessary comparison. Many candidates just used statistics in their answer rather than using comparative terms, such as 'more' or 'less'. This approach was acceptable if the statistics were comparable and within the relevant tolerance, however many candidates were not sufficiently accurate, e.g. 'secondary and tertiary in LEDCs about 10 per cent'.
- (iv) Most candidates suggested one or two reasons, typically relating to education and mechanisation. More perceptive candidates referred to other ideas, such as the availability of resources and demand for services, whilst some weaker candidates did little more than describe the difference in employment structure or give examples of jobs within different sectors in LEDCs and MEDCs.
- (b) (i) Many candidates gained one mark for the idea of worldwide spread of factories, sales offices or raw materials. Some candidates also realised that the headquarters are in Europe, but many just named the country. Most candidates gave a list of countries providing raw materials thus not demonstrating an understanding that they are obtained from LEDCs while the headquarters are in an MEDC.
- (ii) This question differentiated well and some excellent, sophisticated responses were seen with developed ideas. Many focussed on just one or two reasons such as to gain new markets, improved transport and advances in information technology. Some candidates continued to focus on Ferrero, or wrote about the effects of globalisation rather than why it has occurred.
- (c) Many candidates gave an appropriate example, most commonly Nike or Toyota, though many other examples were seen. There were some very high quality, balanced answers. The most common ideas related to jobs and exploitation. Weaker answers lacked detail of the benefits or disadvantages and focussed on one or the other. Some responses focussed incorrectly on the benefits and disadvantages caused by the product being manufactured or sold.

### Question 6

This was more popular than **Question 5**.

- (a) (i) Most candidates defined the term correctly using a variety of acceptable ways.
- (ii) Most answers were correct.
- (iii) Many candidates answered this well, recognising three raw materials (e.g. shrimps, cattle, sugar cane) and the appropriate processing industries which were located nearby. However, there many irrelevant references to power generation and shipbuilding.
- (iv) This question differentiated well. Many candidates suggested valid factors, with access to the market, labour supplies and land availability being most common. Transport and water were suggested by many candidates but these were sometimes too vague to earn credit. Some candidates put an incorrect focus on factors which are likely to affect farming in Panama, rather than industrial location.

- (b)(i)** Many candidates stated three correct ideas, however, some gave examples of specific raw materials or 'human, physical and economic inputs' rather than 'types' of input.
- (ii)** This question enabled good discrimination, most candidates at least were able to name an output of a manufacturing industry but many others showed good knowledge of a sequence of processes within their chosen industry. Many of the best answers focussed on car assembly, food production and iron and steel though many other types of manufacturing were used successfully. Some candidates started their answer by naming 'agriculture' rather than a type of manufacturing industry. Some continued with this theme and gained no marks, but others developed their answer into processing the farm products to gain some credit.
- (c)** This case study differentiated well. Many areas were named but a lot of the examples were of countries which limited the maximum mark which could be scored. Many better answers focussed on a clear example of a specific agricultural land use, such as rice farming alongside the Ganges, and referred to natural factors such as aspects of the monsoon climate, silt deposition and gentle relief which encourage that land use. Weaker answers were generally vague and lacking in detail. Many referred to relevant ideas, such as rainfall, temperatures and soil fertility, but did not link these factors to a specific crop or type of livestock. Some candidates described farm processes but did not link them to the natural factors, whilst others wrote about how natural hazards influence farmers.

# GEOGRAPHY

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Paper 2217/13  
Paper 13

## **Key messages**

In order for candidates to perform well on this paper they needed to be able to:

- Ensure that the examination rubric is followed correctly, answering three questions, one from each section.
- Select the three questions with care. Read all of the questions through carefully and study the resources provided with them before making a choice.
- Answer all parts of the three chosen questions and ensure that sub questions are not missed. This particularly applies to the last part of each question that carries seven marks.
- Read the questions carefully. If it helps to do so, underline command words and words which indicate the context of the question.
- Respond in the correct way to command words used in questions, in particular 'identify', 'describe', 'explain' and 'compare'.
- Identify the correct focus specified in the question stem – e.g. causes or consequences, problems or how they are being managed.
- Ensure that they respond correctly to key words and learn the meanings of geographical words and phrases in order to be able to define and accurately use geographical terminology. When defining words or phrases, candidates should not simply repeat a word or words as part of their definition.
- Understand how to use comparative language, with statistics to support their answers, when a question requires it.
- Use the mark allocations and answer space provided in the question and answer booklet as a guide to the length of answer required and the number of clear points that need to be made.
- Write in detail and develop ideas in five mark and seven mark questions where development of ideas is credited.
- Write as clearly and precisely as possible avoiding vague, general statements.
- Write in full wherever possible, especially in the final two parts of each question, ensuring that ideas are developed with the correct focus.
- Perform basic skills using graphs, photographs, diagrams and maps of various types, referring to them in an appropriate way to support ideas rather than directly lifting material from them without any interpretation.
- Ensure that trends from graphs are qualified where required – for example, 'rapid increase' or 'slow growth'.
- Be able to describe physical geography processes in a clear sequence, making appropriate use of key geographical vocabulary.
- Have a range of case studies so that appropriate ones can be chosen for the topics tested.
- Ensure that each case study used is at the correct scale. Both the syllabus document and each question identify the scale required for these.
- Avoid writing a long introduction to any question, including unnecessary background material at the expense of addressing the main focus of it.
- Ensure that an element of place specific detail, however, is included where required.
- When using the extra pages at the back of the question and answer booklet, indicate that the answer is continued and clearly show the number of the question on the extra page. Continue answers on the specified continuation pages rather than elsewhere in the answer booklet.

## General comments

The examination was considered to be appropriate for the age and ability range of candidates and it differentiated effectively between candidates of all ability levels. The strongest responses showed good performance across the paper and some excellent, well expressed and detailed Geography was seen. Most candidates were able to make a genuine attempt at their chosen questions. However, weaker candidates found it difficult to interpret questions and write relevant answers. Some found the case study questions challenging and some did not attempt them at all. Candidates seemed to have sufficient time to complete the paper.

Most candidates followed the rubric by selecting a question from each section as required. A few rubric errors were still seen and a reminder to candidates before the examination to answer one question from each section would be helpful. Some weaker candidates attempted any parts of questions that they could answer from all six questions rather than selecting one question from each section whilst a few answered three questions but did not select one from each section as instructed in the rubric.

**Question 1** was the most popular question in **Section A** and very few candidates attempted **Question 2**. **Question 4** seemed more popular than **Question 3** in **Section B**. There seemed to be more of a balance in the questions answered in **Section C**. There were good answers seen to all questions, including those requiring extended writing, particularly the case studies on over-population, characteristics of a desert ecosystem and energy use in a country. High quality answers in these case studies were characterised by developed ideas with some appropriate place detail. Weaker responses tended to be generic development of ideas with little place detail to support them, whilst others just used simple, brief statements. In some cases, a significant amount of detail included by candidates was not relevant to the question being asked, especially where long introductions occupied much of the answer space. This particularly applied to **Question 6** where over long introductions focused on problems caused by rather than management of the chosen economic activity.

Case studies require place specific information to allow access to the highest level. This requirement can vary between questions – a country (**Question 1**), a desert (**Question 4**) or an area (**Question 6**). Careful consideration needs to be given to this, as an inappropriate choice could limit the credit given, for example, choosing a country rather than an area or vice versa. Where an 'area' is required, (such as in **Question 6**) choosing a country usually tends to be unacceptable as this is likely to be at too large a scale.

The following comments on 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 a very popular question and attempted by the vast majority of candidates.

- (a) (i) This was mostly correct. However, if a candidate did answer this incorrectly, it was usually by giving the first or third option.
- (ii) This was generally well answered and most candidates were able to score at least half of the available credit. The focus of the question was about the population structure – common incorrect approaches were to write about the shape of the pyramid or birth and/or death rates.
- (iii) This was well answered with many accessing several of the mark scheme points. The most common answers were clearly explained references to contraception; modern attitudes to family size, the role of women and careers.
- (iv) Responses to this question were very variable. The question required candidates to make comparison between MEDCs and LEDCs and this was not always evident in responses. Sometimes, candidates did compare but did so within a country rather than between countries. There were incorrect references to shape, birth and death rates as well as a focus on explanation rather than description. Where candidates did compare effectively, most gained credit by references to young dependents, economically active and old dependents.



- (b)(i) The majority of candidates answered this well. Many gained maximum credit and there were accurate descriptions of trends and appropriate use of statistics. Where candidates lost credit, it was usually for the fact that 'increase' was not qualified.
- (ii) This question was generally well answered and there were some excellent, well detailed responses seen. Most candidates focused on the problems of increased old dependents rather than the implications of a reduced young dependent population. Occasionally, some answers focused incorrectly on the implications of a rising young dependent population, where candidates had either misunderstood the question or the patterns on the graph.
- (c) There was the full range of responses seen to this question. There were some very good responses seen here with clear development of the consequences of over-population including clear place specific detail. Weaker candidates tended to make simple, generic points usually relating to problems such as a lack of jobs, shortage of housing and poverty. Some candidates focused on China and the measures taken to control population rather than the issues that faced China before the One Child Policy was introduced.

## Question 2

Very few candidates answered this question. In many cases it tended to be characterised by weaker responses or rubric error candidates.

- (a)(i) Almost all candidates answered this correctly.
- (ii) Most candidates correctly identified 'Brazil' for the first answer but fewer candidates successfully identified 'Angola'.
- (iii) Most responses tended to describe urban areas in general and did not take account of the 'high order' element of the question. Answers would have also been improved by the use of relevant terms such as high order, comparison goods, specialist goods, sphere of influence etc.
- (iv) This question was answered very well with some excellent responses seen. Some candidates did repeat rural push and urban pull factors – for example, lack of jobs in the rural area and more jobs in the urban area. Some candidates made quite vague reference ideas such as quality of life, standard of living, services, and opportunities without giving more specific detail about these ideas – for example, better education or more access to healthcare.
- (b)(i) This question was not well answered and it seemed that there was confusion about the meaning of the key terms in this question.
- (ii) This was not well answered. The most common points made related to frequency of use or the order of the goods/services provided. Whilst a range of mark scheme answers were seen, it was common for most responses to just focus on one or two ideas. Appropriate development of ideas was not common.
- (c) There were a few excellent responses seen to this question where candidates clearly understood the concept of a hierarchy and gave a detailed description of a range of settlements and their services within a country or area. These answers also included appropriate place specific detail, often making use of the candidate's own country. However, these were not common. As many weaker responses were seen to **Question 2** there were also some far less detailed responses seen where the focus was just on one city rather than a range of settlements within a country or area. An understanding of the concept of hierarchy was not seen in many responses and this limited the amount of credit gained. Often, the link between the size of the settlement and the services provided was not made clear.

### Question 3

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

- (a) (i) Answers were very variable. There were some accurate definitions seen in the strongest responses.
- (ii) Responses to this question were very mixed. The strongest candidates were able to correctly identify and name the features from the diagram. However, a significant number of candidates were not able to accurately name the features or use key terms correctly – for example, using ‘boundary’ rather than ‘watershed’.
- (iii) This question was poorly answered. There seemed to be confusion about the Torreon Wash and Lower Rio Puerco, often without realisation that the Lower Rio Puerco drained the entire river basin. More careful use of the source material provided would improve the accuracy of responses. Correct ideas from the mark scheme were seen, as were answers that made comparison as required, but these were not typical.
- (iv) Candidates generally scored well on this question and were able to identify a range of strategies to reduce river flooding. This question demonstrated good knowledge recall by most candidates.
- (b) (i) This question differentiated well. There were some very good answers which made clear use of the photograph. Weaker responses tended to miss the link to the features being typical of a river ‘near its source’ and described what they saw irrespective of the relevance of their ideas. Some candidates lost credit by making reference to the speed of flow which cannot be judged from a photograph.
- (ii) This was generally not well answered. Many answers tended to concentrate on changes to the river channel itself rather than the long profile or cross section as the question required. There were some good answers seen that related to the cross section of the valley but changes in the long profile of the river were less well known by candidates of all abilities.
- (c) This question differentiated well. Stronger responses described and explained the formation of a delta clearly with appropriate use of key terms and made good use of a diagram to support their ideas. However, weaker responses found this question more challenging, either making simple statements describing the delta, not scoring at all or indeed not attempting the question.

### Question 4

This question was more popular and, on the whole, was answered better than **Question 3**.

- (a) (i) This was generally well answered by most candidates.
- (ii) There were mixed responses to this question. Candidates who understood the key term correctly calculated the annual temperature range and gained full credit. However, some candidates were confused and calculated an average (mean) temperature for the year rather than working out the range.
- (iii) There were mixed responses to this question. Most candidates gained credit for a reference to being at the Equator. Poor expression, simplistic answers and a lack of knowledge of key terms often limited answers here.
- (iv) This was better answered than the previous question with several responses being awarded full credit. The best answers linked the stages of the water cycle well to high temperatures to explain the causes of convectional rainfall and made appropriate use of key terms.
- (b) (i) This was generally well answered. Many candidates used the diagram well to make points relating to loss of species, lack of food and loss of habitat. Weaker responses sometimes used the word ‘affects’ without being specific about how it affects the ecosystem and therefore lost marks. There were some references to ideas not on the diagram where candidates had not followed the instruction ‘using Figure 6 only’.

- (ii) Candidates showed some good knowledge of the reasons for deforestation. Common responses related to logging, settlement, agriculture and mining. There was also valid development of ideas from some candidates. Weaker responses tended to focus on a limited number of ideas or express them in a less specific way – for example, forests are cleared for ‘wood’. There were some incorrect references to the forests being cleared for medicines.
- (c) There were some excellent answers here that showed very good knowledge of the characteristics of a named desert ecosystem. The Sahara Desert was the most commonly used example, however there were sometimes incorrect references to The Sahel as an example. Place specific detail was sometimes included and many responses reached Level 2. Most answers tended to focus on vegetation and there were some very good explanations of adaptations seen. Answers could be improved by ensuring that candidates focus on more than one element of the ecosystem – for example, climate and wildlife as well as vegetation. This was probably the best answered of the case study questions.

### Question 5

- (a) (i) This was usually correctly answered by candidates.
- (ii) Most candidates gained full credit on this question.
- (iii) This was generally well answered with some clear examples of how to increase supplies of clean drinking water. Most candidates gained credit for ideas relating to purifying water or ways of increasing storage such as dams/reservoirs.
- (iv) There were some very good responses seen here that made reference to the full range of mark scheme ideas. Most candidates were able to achieve some success on this question by reference to preventing disease, improving life expectancy and water being essential for survival. There were some answers that did not focus on ‘drinking water’ and therefore made irrelevant reference to ideas such as irrigating crops.
- (b) (i) Most candidates scored well on this question. However, answers could be improved by ensuring that candidates compare and that supporting statistics given are accurate.
- (ii) This question differentiated well. Weaker responses showed an understanding that agriculture and industry varied in importance between the two countries and this was reflected in their water use. Others were able to further develop these ideas by reference to the use of water for irrigation or for manufacturing processes. The very best answers then went on to explain the differences in domestic use and link this either to supply or to the affluence by a reference to appliances used within the home.
- (c) This question was generally well answered. Weaker candidates were able to gain credit by referring to the types of energy used within a country. The better answers included a range of energy types with clear detail on how the energy was provided including place specific detail. Some candidates just wrote about one power station or method of supply which does limit marks as it would be unusual for all but the smallest country to gain their energy from just one source. Whilst the reference to valid statistics is appropriate, it should not be over relied on as a means of development.

### Question 6

- (a) (i) This was answered correctly by almost all candidates.
- (ii) Most candidates gained credit for correctly identifying one or two causes of pollution from Figure 9.
- (iii) Most candidates answered this well and many were awarded full credit. Good use was made of the source material provided.
- (iv) Responses to this question were variable. Most candidates scored credit for ideas relating to the employment created by the gold industry and the cost of solutions. All mark scheme points were seen across the full range of answers with the strongest responses also making reference to ideas such as corruption.

- (b)(i)** This was generally well answered showing good understanding of the diagram.
- (ii)** This question was well answered with some good development of ideas seen. Candidates seemed well prepared for this question and were familiar with the impacts of global warming on the natural environment. Some answers could be improved by candidates being more specific in their answers – for example, ‘flooding of low lying coasts’ rather than just a reference to generic flooding.
- (c)** Generally this was not as well answered as the other case study questions. Often there were over long introduction about the nature of the economic activity and the impact that it has had rather than a focus on the strategies being used to manage the activity. There were, however, some very good answers seen with use of an appropriate case study – for example, the management of tourism and deforestation.

# 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 previous sessions. In **Section A**, **Question 2** and **Question 4** proved to be the easiest, particularly all parts of **Question 2(a)** and also **Question 4(a)**. Candidates found **Question 1** to be challenging, along with **Question 3(b)(ii)** and **Question 5(a)**.

In **Section B**, **Question 8** was marginally more popular than **Question 7**, though the latter proved to be slightly easier. In **Question 7**, the graph completions of **Question 7(b)(ii)** and **Question 7(b)(iii)** scored well, while in **Question 8** the completion and use of the survey sheet in **Question 8(d)(i)** and **Question 8(d)(iii)** proved to be the most straightforward parts. **Question 7(c)(ii)** and **Question 8(a)(ii)** were both challenging.

For both questions on **Section B**, omission rates began to increase towards the end, perhaps indicating that some candidates were running short of time, though others did write in some detail for the last part of each question. In **Section A**, omission rates were relatively high for **Question 1(a)(iii)**, **Question 1(e)**, **Question 3(b)(ii)** and **Question 6(c)**.

Candidates need to be reminded to read the question carefully and to look for, and respond to, command words. They should make use of the resources and select information from them with accuracy (**Question 2(b)(i)**), but at the same time be prepared to think beyond the resource and draw on their wider knowledge of geography (**Question 3(b)(ii)**, **Question 4(b)(i)** and **Question 5(a)**).

## Comments on specific questions

### **Section A**

#### **Question 1**

- (a) The 1:50 000 map was of Castletown, Isle of Man, and **part (a)** focussed on the railway in the south of the map. Candidates were asked to measure the length of the railway from the station at Port Erin to the station at Castletown, giving their answer to the nearest kilometre, and also note the number of intermediate stations. The correct distance was 9 km, with 3 being the number of stations. Although many had correctly counted the stations, the distance measurement was often incorrect. The most common error was to measure the straight line distance between the two points, which came to 7 km. Others had followed the railway line, but had not rounded their final answer.

Continuing with the railway line, candidates were asked what had been done to keep the railway level. The railway maintained height by following the edge of the hills. The easiest evidence to spot was cuttings to the east of Port Erin and to the north west of Castletown. However, candidates who mentioned these usually copied the line of the key 'tunnel, cuttings' without making their own interpretation.

The railway crossed the A28 road by means of a bridge, while at the B45 road there was a level crossing. A number of candidates spotted the bridge, but they needed to find the meaning of LC, which was in the railway section of the key, rather than a listed abbreviation. A description was an acceptable alternative to level crossing, so the railway was 'built into the road' was valid for the mark. However, many candidates were uncertain about this question and simply mentioned anything that was easy to identify, typically the on road cycle route at the A28.

- (b) Focus then moved north to the viewpoint at the junction of the A27 and the A36 roads. Candidates were asked for the six figure grid reference of this point. Some candidates had the correct response of 246758, while others had reversed the third and sixth figure or the first three digits and the second three.

Candidates were then asked why this was a good location for a viewpoint. Most realised that the land was higher at this point, or at least higher than the surroundings. However, they often went on to just mention other features of the locality, without considering their relevance to the viewpoint. Thus they mentioned the plantations, for example, but needed to say that there was a clear view over the trees. Other valid points included the land dropping away to the north west and south east, leaving the viewpoint at a col, on a ridge, with the symbol indicating a worthwhile view in all directions. The presence of the road junction made the location easy to get to and the fort would be in sight on the nearby hill of South Barrule.

- (c) For **part (c)**, candidates had to consider the location of the fort on South Barrule and suggest why it would be a good defensive site. Even higher than the viewpoint in the previous question, this site had a clear view of its surroundings and was surrounded by steep slopes making it a difficult site to attack. Additionally, its location away from other major hills would enable people to look out over a large area. There were some good answers for this part, and many candidates scored at least one of the marks. Less relevant responses mentioned hiding in the woods or escaping via the roads.
- (d) South Barrule Forest Park could be located on the side of the hill, in grid square 2776. Candidates were asked to state three facilities for tourists, of which there were cycle trails, walks, picnic sites and parking. Many candidates got three marks here. It was important to use the map key with care ('parking, park and ride' did not score) and write about facilities rather than activities (so cycle trails rather than cycling).
- (e) Fig. 1 directed candidates to an area of the map where the roads were used as a racing route. This was also clearly labelled on the map extract. Candidates were asked to complete the description of the course, a sentence for each of the four roads. The first sentence was given in full as a pattern to follow. The correctly completed paragraph was, 'At the A3, turn to go SWW. At the A5, turn to go WNW. At the A28, turn to go N...' Candidates usually had the middle response correct, with the road named as A5, but they found the directions difficult. Many seemed to be unsure of the 16 point compass. Commonly, they put WSW or SWS in the first gap, suggesting that they knew what they were trying to say but were sticking too closely to the pattern of the examples in the other sentences. Similarly the last response was often NWN for the same reason.
- (f) The map work ended with a look at a section of coastline, in the area identified by Fig. 2. Candidates were asked to describe the physical features and there were plenty to write about with a sandy beach, shingle, flat rocks and cliffs, islands or stacks, and headlands and bays. Most candidates scored at least two of the marks available, though care was needed with the key, with many candidates referring to sand dunes. Features needed to be stated as features, rather than simply listing place names that happened to have the correct word included. A few candidates wrote about human features of the area.

## Question 2

- (a) Fig. 3 showed the number of USA citizens living in Canada, Germany, Mexico, Puerto Rico and UK in 1990, 2000 and 2010. Candidates first had to complete Fig. 3 to show 160 000 USA citizens living in the UK in 2000, and then read from Fig. 3 to discover 100 000 USA citizens in Germany in 1990. Germany had no apparent change in the number of USA citizens in 2010 compared with 2000, while Puerto Rico showed a decrease in number in that period. This section was done well by almost all candidates. A few had omitted the graph, but the omission rate was not as high as is sometimes the case with graph completions.

- (b) Next, candidates were asked to rank the countries from highest to lowest number of USA citizens, using the 2010 data. The correct order was Mexico, Canada, UK, Puerto Rico, Germany. Again many candidates had a correct response. The most common error was to have UK and Puerto Rico the wrong way round. The bars on the graph are of a similar height, but clearly different, and candidates need to look at the data carefully in such cases.

Candidates were then asked which two countries had exchanged rank positions between 1990 and 2010. There was evidence on the scripts that many candidates had, at this point, ranked the countries using the 1990 data. They could then clearly see that Canada and Mexico had exchanged positions and also Puerto Rico and UK. Only one pair was needed for the mark. Those who had made an error had usually taken one country from each of the pairs.

- (c) Candidates were then asked to compare the change in number of USA citizens in Canada and Mexico between 1990 and 2010. Both countries had a clear increase and both experienced a more rapid increase in the second ten year period from 2000 to 2010. Mexico's increase was much greater overall. There were some good answers here. Many candidates scored a mark for the idea of both increasing and a number of them went on to describe the different rates for the second mark. Few noticed the more rapid increase in the second decade, but full marks could be achieved without this. Weaker responses usually just quoted numbers, without referring to the increase, or were about which country had the most people in each of the years.

### Question 3

- (a) Photograph A showed a river bank that had been modified to prevent bank erosion and candidates were asked to describe and explain the method that had been used. Although a substantial amount of extended writing was needed here for all five marks, candidates had plenty to write about and most managed to describe at least some of the materials used and how they were arranged in relation to each other. In order to get all the marks, it was necessary to include some explanation of how erosion was prevented. Alternative expressions were equally valid, but basically the wood supported the wire net, which contained the stones. These absorbed the water impact instead of the energy eroding the bank. On top of all this, a cloth was containing the soil and this supported grass which would also hold the soil in place. Most candidates scored at least some of the marks and there were many good answers.
- (b) The focus of the question then moved to the coast. Candidates were told that coastal protection had been used at B, on Fig. 4, and were asked why protection was not thought to be necessary at A and C. At A the settlement was further inland so 'no settlement at A' was valid. An alternative idea was that the cliffs at this point were made of hard rock and very resistant to erosion. A common error was to write as though the settlement was A, such as 'A is not at the coast'. The coast at C was sheltered from the prevailing wind by the headland and the bay location meant calmer and shallower water. Candidates were more likely to score a mark for A than for C. For the latter, many simply wrote that C had no cliffs and some were confused with river features such as ox-bow lakes and meanders.

Candidates were then asked to suggest, with a reason, a group of people who would be against the use of coastal protection at B. Any group was acceptable, with the mark being awarded for a plausible reason. The best answers usually explained that tourists would not want the view to be spoiled or that environmentalists would be concerned about destruction of habitats. A number of candidates wanted to write about the local residents, but they struggled to express a good reason.

### Question 4

- (a) Fig. 5 gave climate data for two locations in West Africa. Candidates were given a partially completed table and were instructed to fill the gaps by selecting the relevant information from Fig. 5. For each element, the data had already been completed for one of the places, so in each case there was the possibility of comparison to help them to check that they were on the right track. The temperatures for Lagos were highest of 31°C, and lowest of 26°C, giving a range of 5°C. The total days with rain for Tombouctou were 19, while the month with rain on most days for Lagos was June. Most candidates scored at least three and many got full marks.

- (b) **Part (b)** was not based on Fig. 5. Candidates were asked which months they would expect the highest temperatures for places in the northern hemisphere. The mark was awarded for any consecutive sequence of months, including at least two of May, June, July and August and not including December, January and February. There were some correct answers, but many candidates had tried to use Fig. 5, which often meant that they included February.

There were lots of possibilities for **part (ii)**: Factors influencing temperature in a desert. Candidates tended to focus on aspects of the weather, such as cloud cover or sunshine hours and wind direction, but angle of the sun, altitude, distance from the sea and influence of ocean currents were also valid. Many candidates scored one mark, but relatively few got both. The weakest answers just referred to day and night.

### Question 5

- (a) Fig. 6 showed the water supply system for New York City, including reservoirs in two areas bounded by watersheds. The first question was testing understanding of 'watershed': The boundary of the drainage basin, separating one river system from another. This was not widely known and of those who did know it, not all expressed the answer clearly.
- (b) Candidates then needed to use Fig. 6 to identify two methods used to transport water towards New York City (**part (i)**) and two different types of named fresh water source (**part(ii)**). The transport methods were aqueduct, tunnel and river, while the freshwater sources were reservoir, Hudson River and Delaware River. There was some confusion here, with some candidates naming aqueducts in **part (ii)** and others just quoting names such as Delaware, which was the name of a river, a tunnel and an aqueduct.
- (c) New York City was generally south of its water supply by up to 250km. Alternatives to distance and direction were 'lower land' or simply 'downhill' and 'downstream' or 'at the mouth of the river'. Few scored two marks. Correct statements usually referred to the direction or the mouth of the Hudson River.
- (d) Many candidates suggested a valid source of river pollution, commonly waste from factories, oil spills from ships, fertilisers or pesticides from farmland or sewage. Weaker responses had tried to draw inspiration from Fig. 6 and suggested pollution from the aqueduct. Others wrote about litter falling in the river.

### Question 6

- (a) Fig. 7 was a world map showing percentage of energy production from renewable energy and candidates were asked about the term 'renewable energy'. They needed to write about the energy not running out or being replaced as fast as it was used, which some did. Others simply said that the energy could be used more than once or could be recycled, which was not quite clear enough.

Candidates were then asked to describe the distribution of areas producing 33% or more of renewable energy. The majority of the areas were within the tropics, indeed south of the equator. Many made this general statement. Further detail was then needed for more marks. Candidates needed to refer to different continents, either counting the number of areas within the continent or giving more precise locations with compass directions. Correct country names were credited, one for each continent, though it was possible to score all the marks from descriptions alone. Weak answers gave vague locations, often referencing to the oceans or a latitude line. Most candidates gained some marks, but relatively few got all four.

- (b) Geothermal energy would be available at a plate boundary, while in the desert, solar would be readily available. Most had a correct response for desert, fewer for the plate boundary.
- (c) **Part (c)** produced an interesting range of answers. The correct response was 'hydro-electric power', though a description such as 'energy made by falling water' or simply 'water power' was also accepted.



## Section B

### Question 7

- (a) All candidates are expected to have a good grasp of the type of equipment used in basic fieldwork methodology which would include identifying distances or areas to measure usually with regard to rivers or beaches or carrying out urban transects of land-use. Creating two transects in a river valley involves laying a rope in two directions away from the river. It was disappointing to see many candidates chose callipers, a quadrat or a ruler for this. A number of candidates ticked more than one choice despite the question asking 'Which **one**...?.'
- (b)(i) There were three key requirements of the process for measuring the infiltration rate; that water was retained in a water container, that a fixed amount of water was poured into the measuring tube and that they used a stopwatch to measure the time taken every minute for the water to fall in the measuring tube. Most candidates could use the information in the insert to identify three processes or steps and gained full marks. A few thought that the water was poured into the soil rather than into the tube and some ignored the names on the diagram e.g. referring to a chronometer instead of a stopwatch. Some placed the measuring tube on the ground instead of into it as shown on the diagram and others thought the timing applied to all the water entering the soil rather than the level every minute. One or two referred to an infiltrometer which is a different instrument and works in a different way to the method outlined in the insert diagram which candidates were referred to.
- (ii) Plotting these three points accurately was not an easy task yet most candidates did this well with just a few plotting two of the points on lines instead of between them. A number plotted the three points in other areas of the graph well away from where they should have been plotted; there was no obvious explanation for this. Too many candidates, though, did not attempt the plots at all.
- (iii) It was pleasing to see that almost every candidate that attempted this question gave a correct answer of 24/10 often using the dotted horizontal line as the dividing line which was acceptable. One or two gave the full equation which was also acceptable. However, a similar number of candidates as in (ii) did not attempt the question at all.
- (iv) It was pleasing to see that fewer candidates failed to attempt this plot, however too many failed to look closely enough at the vertical axis to realise that the 2.4 plot was needed above 140 m at just one line above the 2 mm per min line. There were quite a few plotted at 2.8 instead of 2.4.
- (v) This was well done with candidates agreeing that the hypothesis was correct and then quoting two sites with correct data that supported the fact that the infiltration rate decreased with distance from the river. The third mark was less easily achieved though as the graph clearly showed that there was a decrease in every site between Site 1 and 7 and Examiners were looking for that recognition for full marks. A small number of candidates just repeated the hypothesis which may signal their agreement but was not credited as a decision; candidates must state if they agree or disagree with the hypothesis. In these cases evidence was credited assuming agreement but the reserved hypothesis mark was not given. A few misread the distances e.g. they used 120 m as the 2.4 infiltration rate or 0 m as the 15 mm rate.
- (c)(i) It was pleasing to see that quite a few candidates did recognise that Transect A demonstrated a negative correlation and Transect B had no correlation. Other terms were accepted such as constant trend, inverse relationship, regular pattern for A and scattered, random or no relationship for B. Some candidates tried to compare actual results using data; a few just copied the hypothesis given in **Question (b)(v)** for Transect A.
- (ii) Candidates were directed to the map in the insert which illustrated the different land-uses around the river along which the two transects were made. There were three main differences that would help explain the different rates; these were soil types, vegetation, and gradient. Candidates could describe the differences between these three influences and suggest, for a fourth mark, any impact of a difference on infiltration e.g. higher on sandy soil. The best answers contrasted in detail the type of soil e.g. sandy and clay in A but mixed in B, a steeper gradient in A than B. These answers gained high marks. Too many, however, did not provide details of differences and just suggested different soils, different vegetation, different contours. Other weak answers included comparing heights, which were not different enough to affect infiltration, and the transects going north and south which could only be an impact if explained in terms of aspect and evaporation but this was never seen. A small number referred to Transect B having bare ground but Fig.1 clearly shows that

the bare or cleared ground was in Sites 5–7 of Transect A. Overall this sub-section was the least well done part of **Question 1**. There were very few references to how these differences would affect infiltration rates.

- (d) (i) Most candidates gained two straightforward marks by referring to Method 3 being easier/quicker and by suggesting it was more accurate. Fewer gained three marks although there were plenty of other ideas to suggest e.g. less equipment needed, results are instant and there is no need for calculations. It is important in questions like this for candidates to focus on the advantages of Method 2 as asked in the question and not on the disadvantages of Method 1 although there is inevitably a degree of comparison involved. Answers such as the digital instrument being cheaper or being less tiring to use for the students were not credited.
- (ii) Too many candidates did not attempt this simple plot and bar graph. Candidates must check the tasks required on pages where graphs appear to be complete, in this case at the top of Page 21, which refers to the data that needed plotting being in the Insert. These are straightforward graphs which the majority did well. However some plotted the bar where the plot should be and vice-versa; a common error was to mark the plot using the left-hand axis instead of the right-hand axis. Some found the 13.2 plot at Site 3 hard but it was on a line if the candidates took the time to work out that each square on the vertical axis represented 0.4 i.e. exactly 3 squares above the line numbered 12.
- (iii) The majority of candidates correctly chose Group A as having the results that agreed with the hypothesis. Most then gave the correct data from Table 3 that proved the hypothesis matched Group A's work. One issue here though was that many candidates gave two sets of data for infiltration rate and soil moisture content but did not say which sites they were from or where along the river the data was taken e.g. a distance. Instead they used terms like 'when' or 'where' the infiltration rate was x the soil moisture content was y. It was important here to identify clearly which sites were being compared. It was also important to support the choice with evidence from Group A; not by explaining why Group B's results did not agree with the hypothesis which is what a small number of candidates chose to do.
- (e) This was done well by most candidates; they recognised that heavy rain would fill or saturate the spaces in the soil so that any infiltration would be reduced or not take place creating pools of water or waterlogging at the surface. Some tried to link their answer to the two different Transects A and B which was not required or appropriate.
- (f) Candidates appeared unclear about what this question required. The reference to the area being 'a popular tourist area' seemed to trigger many inappropriate responses often involving the effect of litter, pouring water on the ground and driving cars over the soil. Other responses that were not accepted included the idea that they would remove soil and vegetation on their shoes making the soil bare and increasing infiltration. Some suggested that the people walking would spoil the students' experiments. The question asked about the effect of people walking in the area and the majority of candidates correctly referred to compaction or compression, air spaces being reduced, thereby reducing infiltration in the soil.

### Question 8

- (a) (i) Candidates were expected to recognise the bi-polar system used in creating the environmental recording sheet and be able to describe how it could be used by students carrying out their survey. Most stated that a student would either work alone, or in a group, and write in the name of the area, observe or look at the environment being surveyed, make a judgement and tick the correct number on the sheet. A few however suggested that students would ask residents to complete the sheet which was not credited. A small number did not attempt this question.
- (ii) Instead of focusing on how the students would organise an environmental survey that ensured results would be reliable, too many candidates decided to carry out questionnaires and interviews with residents and use their answers rather than focus on how they would organise their own survey without asking questions. The survey required groups of students to decide which site they were going to survey, how they would come up with reliable grading on the survey sheet (e.g. take an average score), how they would ensure comparability (e.g. do surveys at the same time on the same day) and how they could be reliable (e.g. carry out more surveys in different seasons at the same time). The more successful candidates did make these suggestions but, with a high number

missing it out, and many finding it inaccessible, this sub-section proved to be the least well attempted on the paper. A few candidates did not attempt either of the questions.

- (b) (i)** To test the candidates' understanding of the results of a bi-polar survey, they were asked to look at the results in Table 4 and identify differences between two named areas. Most candidates did interpret what the scores meant and stated, for example, that there was less vandalism in Tettenhall or more open land in Low Hill. Weak answers just stated the scores without any interpretation or comparison. Some seemed to think that a score of 0 meant, for example that there were no roads or pavements in Whitmore Reans. Interpreting such data is an area that centres need to work on. The word 'better' was sometimes used inappropriately.
- (ii)** This was done well by most candidates. The two plots were not the easiest to locate and they needed joining correctly to get the available mark. A few plotted the points correctly but did not give a line or joined them up by bizarre routes. As with previous graphs and diagrams a number did not attempt it.
- (iii)** As  $-5$  was a clear distance marked and named in the key (25 mm) there was no room for tolerance in plotting this bar and a high percentage of candidates plotted it well. They did not need to shade it correctly for the mark which was of benefit to some. A small number plotted the bar at  $+5$ ; a significant minority however did not attempt the question at all despite the instructions being emboldened at the top of Page 25.
- (iv)** It was pleasing to see how many candidates chose the correct 'Partly true' conclusion and then supported it by quoting areas that made the hypothesis true but also recognising Tettenhall as being a clear anomaly. Candidates should have used more comparative statistics in proving it true between named areas close to the city centre and further away but, overall three marks was a common achievement. Few gave a general statement e.g. most areas close to the centre had low scores while most areas away from the centre had higher scores. They tended to focus on specific sites that suited their argument.
- (c)** Random sampling techniques vary and it was often difficult to identify which type the candidate was referring to. There is the more organised random sampling method using random number tables or generating numbers from a computer and there is the much 'looser' method of picking numbers out of a hat or just asking anyone. Credit was given to either technique though, if unidentifiable, the advantage was generously marked e.g. faster, everyone gets a chance to be asked. The majority of candidates referred to 'asking anyone' as their description. One answer that was not credited was to ask people 'randomly'; which does not describe what random means. A few confused random with systematic.
- (d) (i)** The circling exercise proved to be the easiest question on the paper with almost every candidate that attempted it correctly circling the two correct time ranges although one or two circled on the wrong horizontal service line. It was disappointing though to see a high percentage fail to attempt the task and thereby not gain two relatively easy marks.
- (ii)** This was reasonably well done although a few candidates did not attempt it. Those that did, made the correct point that people did not know their walking times and would guess, and that people walk at different speeds, may use a vehicle or stop on the way to the service, maybe taking an alternative route to the quickest one.
- (iii)** It was pleasing to see the number of candidates that correctly worked out the score of 4 for the local store and then correctly added the total to 24. Candidates should take care to make clear that the number they give is a 4; the benefit of doubt was given to numbers that often looked like a 9.
- (e) (i)** This was a difficult line to plot on the fairly small pie graph but many candidates drew the line correctly at 162 degrees or within the 1% tolerance allowed. To get the mark however they needed to shade the pie graph in the correct type of shading used on the other completed graphs. A number failed to do this. While shading is not always part of the marking, candidates should be taught to assume it is and make sure they shade correctly where appropriate.
- (ii)** It was surprising to see how many candidates thought that the hypothesis was 'partly true'; the correct answer was 'false'. With the three areas closest to the centre having a high percentage score and the two furthest areas having lower scores, overall the hypothesis was proved by five of the six sites with Tettenhall, located neither close nor far away from the centre, having the least

access score of all five so not contributing enough to either argument to make the hypothesis 'partly true.'

- (f) Carrying out traffic surveys has been a common question in previous papers and is a common fieldwork exercise carried out by many Centres especially those in urban areas. There was a clear division here between candidates who had carried out traffic surveys or had been taught how to do this and other candidates who made inappropriate suggestions such as interviewing drivers stuck in queues or at traffic lights or carrying out a survey of residents' thoughts on traffic jams. Pedestrian and pollution surveys were also suggested as were systematic sampling (count every tenth vehicle) and working out averages instead of totals. The most successful responses suggested working in groups on both sides of a main road and counting vehicles (not just cars) coming in and out of the centre in a fixed period of time several times in a day e.g. rush hours. They would use a counter, clicker or tally sheet to record the numbers to total. This question was the one that the highest percentage of candidates failed to attempt which may suggest some time issues as it is a popular and usually successful topic to examine.

# GEOGRAPHY

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<p>Paper 2217/23 Investigation and Skills</p>
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## 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 previous years. In **Section A, Question 2**, particularly **2(a)**, and **Question 6**, particularly **6(a)**, both proved easily accessible, while **Question 3, Question 4** and **Question 5**, contained sections that were more challenging, notably **Question 4(a)(ii)**.

In **Section B**, the two questions were equally popular. **Question 8** proved to be marginally easier, but candidates left more omissions than those who attempted **Question 7**. Highest omission rates overall were **Question 5(b)** and **Question 7(d)(vi)**.

The map extract was very clear and did not appear to present any problems. Candidates need to be encouraged to use measuring equipment to increase the accuracy of their map work answers. This particularly applied to **Question 1(b)**. Practice in contour interpretation (**Question 1(c)**) would also be beneficial. **Question 2(b)(ii)** also provided an example of where measuring equipment would have improved accuracy.

## Comments on specific questions

### **Section A**

#### **Question 1**

- (a) The map extract was of Snaefell, Isle of Man. It included sections of coastline on both sides of the island and candidates were asked to complete the table to compare the features of the two coasts. A bay, flat rock and a headland were all found on the east coast, while a river mouth was present on both east and west. Neither coast contained a spit. Responses usually found the bays (they were labelled on the map) but perhaps over-relied on the place names, instead of looking for the features. There was no visible headland on the west coast, even though the label 'Orrisdale Head' could be seen on the edge of the map.
- (b) **Part (b)** focussed on the peak of Snaefell and its mountain railway. The measurement along the railway, from Summit Station to Bungalow Station, was not easy due to the tight curve on the route, so candidates were asked for an answer to the nearest kilometre. The answer was 3 km. A number of responses put 1 km as they had measured the direct distance rather than following the route of the railway.

The bearing, from Summit Station to Bungalow Station, was between 185° and 189°. A few answers gave 180°, probably because they had decided to estimate rather than measure, but this was clearly inaccurate.

The six figure grid reference of Summit Station was 396 879 or 397 879. Again some responses were inaccurate because candidates had judged by eye rather than measuring carefully.

- (c) Fig. 1 directed candidates to look at an area towards the east of the map and they were asked to describe the relief and drainage. Most noted the high hill, or mountain, with steep slopes, but there were plenty more features in the area, including a ridge, with a double peak, rounded tops, spurs, valleys and various convex and concave slopes. A suitable comment on the height was also valid. One mark was reserved for a comment on drainage, which was radial, with rivers and their tributaries draining to the north, east and south. Candidates would benefit from further practice in contour interpretation to aid in identification of relief features. Rivers could be located more precisely. Some filled the available space with discussion of human features of the wider area.
- (d) Candidates knew what was meant by human features, as opposed to switching them with physical, since they knew what to write about in **part (d)**. Fig. 2 directed them to Sulby Glen and responses typically noted the dam, main road, other road, footpath, coniferous wood and parking area. Marks could also be credited for building, picnic site, cairn, footbridge and weir; features with smaller symbols that were more difficult to spot.

### Question 2

- (a) Fig. 3 showed the international migrant population for six countries, both as a total figure and as a percentage of the total population. **Part (a)** was testing knowledge. International migration involves moving from one country to another country. Any valid reason was accepted for involuntary international migration, with war being a common answer. However a reason expressed as a pull to a new place was not correct.
- (b) Candidates were then asked to complete Fig. 3 to show an international migrant population of 11 million in Russia. The sideways bar graph was generally completed correctly.

The graph showing total international migrant population was already arranged in order of decreasing amount, and candidates were asked to rank the countries based on the percentage figures in the second graph. The correct order was UAE, Saudi Arabia, USA, UK, Germany, and Russia. The most common mistake was to have UK and Germany in the wrong order. The figures are very similar. Candidates should be advised to look carefully at graphs, perhaps using a ruler to help compare the lengths of bars.

- (c) **Part (c)** consisted of a paragraph, with various options to make the sentences correct. An example was provided to show candidates how to indicate their answer. All responses correctly identified 8 million for the first: 'UAE has 8 million international migrants'. Some made mistakes in the other sentences, the correct responses being 'largest', 'larger' and '14 per cent'.

### Question 3

- (a) Fig. 4 showed a maximum-minimum thermometer and candidates were asked what reading it was showing for the current temperature. The answer was 26°C. A common error here was to take a reading from the maximum index.
- Uncertainty continued into **part (ii)**, as responses indicated that some candidates were unsure which end of the index to use for the readings of maximum and minimum temperature. However a correct subtraction of incorrect readings enabled them to have the mark for understanding what was meant by range. Maximum temperature was 32°C. Minimum temperature was 13°C. Range was 19°C.
- (b) Candidates seemed to be familiar with resetting this type of thermometer via a reset button but responses often stated little more than 'push the button'. They did not point out that the indices needed to return to the current temperature. An alternative answer here was to achieve the same by using a magnet. Resetting needs to be done at the same time each day, so that each set of data is for 24 hours and thus data sets are comparable. Some responses noted this, while others went for an imprecise statement such as 'more accurate'.
- (c) 'More accurate' was again a common response in **part (c)**. Some did realise that the thermometer should be kept in a Stevenson screen so that it recorded shade temperature. Alternatively 'the thermometer is protected' was enough for a mark. A further idea was that the standard height of the screen, gave standard conditions, enabling readings to be compared.

#### Question 4

- (a) Fig. 5 showed a section of the Earth's surface with plate boundaries. Candidates were asked for the type of boundary at both P and Q, choosing from three possible answers in each case. P was constructive and Q was convergent. There were many correct answers for P and many wrong answers for Q. This was probably because candidates either had not noticed the change in the list of options, or they had not stopped to consider the meaning of the words.
- (b) At Q the process was subduction.
- (c) Earthquakes occurred at 1, 2 and 3, due to movements in different directions and at different speeds, with sections of the crust locking and releasing. Responses demonstrated that candidates found it difficult to apply their understanding of earthquakes to this particular situation.
- (d) They were more familiar with the idea of volcanoes at C. Responses described the denser and thinner oceanic plate subducting, and increasing temperature and friction resulting in rising magma. However, most focussed on the information in Fig. 5 and prompts taken from other parts of the question, but they could have expanded on these to give a more detailed answer. Additional details could have included the idea of the descending plate melting and the magma being less dense. Mention could have been made of the vent at the surface and repeated activity building the volcano.

#### Question 5

- (a) Photograph A was a picture of a pastoral farm. Not all responses were clear about the definitions of the terms used here. They knew that it was not a mixed farm, but many chose arable. Output from the farm, as indicated by the photograph, fell into three possible categories: meat or beef, dairy products or milk and leather or skin or hide. The examiner was looking for two different outputs, rather than two products from the same category. Responses demonstrated that candidates need to develop an understanding of what is meant by outputs.
- (b) Candidates were then asked to annotate Fig. 6, a sketch showing the same view as the photograph, to show why the land was not vulnerable to soil erosion. They noted the vegetation, with its roots holding the soil together, and the flat or gentle slope. Typically annotations were very brief, more like simple labels. An annotation can be a short comment, enabling candidates to convey more information. Other valid responses were linked to the line of trees and the hedge, both of which would reduce the impact of wind.
- (c) **Part (c)** presented a scenario for the use of the land. Candidates were asked to suggest a group of people who would be in favour of the plan and to explain why. Any valid group with a reasoned explanation was acceptable. For example, 'local traders would have more customers. 'Tourists, so they could camp there' was clearly not sufficiently different to the campers example included in the question.

#### Question 6

- (a) Fig. 7 gave information about a game park in southern Africa. Candidates had to identify two natural tourist attractions and then go on to describe the human tourist attractions shown on Fig. 7. Natural attractions tended to fall into two categories: those to do with wildlife and those of the landscape. Most responses listed a variety of attractions including one from each of these. Birds and woodland were the most popular answers.

The human tourist attractions offered plenty of scope, with drives, guided walks, boating, accommodation with food and drink options, elephant or horse rides and historical cultural opportunities. Most candidates gave full responses but sections were sometimes copied from Fig. 7. This should be avoided. Candidates should be encouraged to select the information that they need but then use it to address the question.

- (b) Finally in **Section A**, candidates were asked to suggest two benefits of organised tourism at the park. Ideas here included income, education and controlled access.

## Section B

### Question 7

- (a) Most candidates identified the correct description of a spit. Some responses could not identify the spit, even though it is a named feature in the syllabus.
- (b) Candidates showed general awareness of safety precautions and many suggestions were appropriate. However, there were a significant number of inappropriate suggestions such as wearing life jackets and high visibility clothing, or keeping well away from the sea. Candidates should consider which safety measures should be taken without making the fieldwork impossible to do.
- (c) (i) The question discriminated well. Most candidates understood a method which could be used to measure wave frequency, but answers varied in quality and detail. Weaker responses merely referred to 'counting waves' without identifying the time at which they would be counted, such as the time they break or hit a particular object. Other answers did not refer to repeating the count a number of times in order to obtain the average number.
- (ii) Almost all responses correctly calculated the average result and gave an answer to one decimal place, as required.
- (d) (i) Most identified the correct statement about longshore drift. The most commonly chosen distractors were the statements which referred to swash and backwash.
- (ii) Although many candidates realised that the cork might disappear many did not explain why, such as it might float out to sea. Strong responses referred to the possible effect of wind blowing the cork because it is light, or that a cork has different properties to sand or pebbles and therefore might be affected differently.
- (iii) Many candidates did not make an appropriate suggestion to improve method two. Although many answers suggested measuring more than once this was too vague to gain credit. Multiple measurements need averaging or to be used as confirmation of a correct measurement. Some suggested measuring at different groynes or using a tape measure rather than a ruler, but these suggestions would not improve the original method which was described.
- (iv) Most responses plotted the average distance correctly. An error made by some was misreading the vertical scale and plotting the bar at the first horizontal line above 14 (at 14.04) rather than half way between 14.0 and 14.2. As often happens in questions requiring completion of a graph there was a significant number of omissions.
- (v) The percentage of candidates not attempting the question was particularly high at 15 per cent. Although the plotting task was more difficult than in the previous question there is no reason for candidates not to attempt it. It was necessary to read the scale from the top down in order to put the top of the bar at the correct height. A small number of candidates plotted the bar correctly but then did not shade it appropriately to show which section was beach.
- (vi) The question requiring candidates to make a conclusion about hypothesis one was a good discriminator. Strong responses gave the correct conclusion that the hypothesis was correct and gave a variety of evidence to support their conclusion. This evidence included distance and direction moved by the cork and a higher beach on the east side showing accumulation of material by longshore drift. Only the strongest responses showed a full understanding of the significance of the height of the beach material on different sides of the groyne.
- (vii) Most candidates made reasonable suggestions about why groynes had been built on the beach. They recognised the need for protection of features such as the sand dunes or village against erosion. Other valid suggestions focussed on the need to slow down longshore drift in order to prevent the spit from extending across the inlet. Weaker responses made vague suggestions to 'stop erosion', or 'prevent flooding' which was incorrect.



- (e) (i) Nearly all candidates who attempted the question correctly completed the tally chart.
- (ii) Many responses gained both marks by giving appropriate locational details, most frequently referring to the paths on the spit and the sand dunes. Weaker answers were not credited because of the use of 'near' which was too vague.
- (iii) Most candidates agreed that hypothesis two was true. They supported their conclusion by evidence from the map and gave an explanation how this would help to preserve the environment. Fewer suggested that the features which they identified would make tourism sustainable by attracting visitors to the area.
- (f) The extension task proved to be another good discriminating question. Many seemed to be familiar with the technique and described it clearly and scored full marks. Weaker responses were vague in explaining how to use the clinometer and measure the distance between the ranging poles. A common error was to describe a method of placing one pole at the start of the beach and another pole at the cliff rather than measuring at regular intervals or at breaks of slope. 7 per cent of candidates did not attempt to describe the fieldwork task.

### Question 8

- (a) (i) Most responses correctly named a method of sampling and many were able to describe the method and gave a simple explanation of their choice. Weaker responses named one method but described a different one. Systematic and random sampling were the most popular choices. Weaker responses made the error of using 'random' or 'randomly' in describing the method, consequently just repeating the name of the method. Few candidates focussed on stratified sampling.
- (ii) This question proved to be quite difficult. Better answers recognised that a 10 per cent sample would have the advantage of not taking too much time. Also, that it would produce reliable results representative of the larger population. However, some candidates explained that a sample would be more appropriate than asking all residents which was not what the question asked.
- (b) (i) Most candidates who completed the choropleth shading did so correctly. Some did not gain the mark because of careless use of the key. The correct shading was horizontal dashed lines not continuous lines or diagonal lines. As in previous similar questions 12 per cent of candidates left Gujarat unshaded.
- (ii) Few responses suggested another suitable method to display the results. Better answers correctly identified or described flow lines. Whilst many suggested a bar graph few explained that the bars would need to be located in the different states of India.
- (iii) Most answers correctly agreed with the hypothesis, but many were vague in their supporting evidence. The most common piece of evidence identified was that most people came to Jaipur from Rajasthan, or candidates used statistics to prove this. Some responses were vague in their use of evidence from other states. They frequently gave statistics from the key but did not identify which states their statistics referred to.
- (iv) Weaker responses did not recognise that the question referred to the pattern of migration shown on the map rather than migration overall. Consequently, their answers focussed incorrectly on generic push and pull factors. Better answers included ideas which referred to closeness to Jaipur and the relatively cheaper cost of transport. A minority of candidates also realised that other cities would be a greater attraction to migrants in more distant states.
- (c) (i) Nearly all candidates attempted to complete the pie graph and there was a small omission rate for a graph completion question. Whilst most completed the graph accurately there were a number of errors made. Some plotted the segments in the wrong order by starting at the top and plotting the segments anti-clockwise or in a random order. Candidates should plot the segments clockwise in the order of the key. Others failed to shade the segments correctly because they did not match the segments to the key or because shading was careless, and lines were not drawn horizontally in the 'no lighting' segment.

- (ii) Most responses correctly identified the percentage of residents with no lighting in their homes. A small number calculated the figure to one or two decimal points rather than reading it off the pie graph. This method produced the correct answer but must have taken valuable time. Weaker responses gave an incorrect answer which frequently corresponded to the percentage of residents who use kerosene lamps.
  - (iii) Almost all correctly plotted the bar on the horizontal bar graph.
  - (iv) The question discriminated well as candidates attempted to explain why hypothesis two was true. Weaker responses put the percentage figures from the data into sentences. This approach only scored one mark. When answers interpreted the data, and made judgements their responses were much more impressive. They used comparative words such as 'most' and 'many' to explain how quality of life is poor.
- (d) (i) Correct completion of the divided bar graph was achieved by most but, as in the pie graph, mistakes were commonly made. Some reversed the order of the segments and did not plot them in the order they came in the data table. Others did not label the segments which was necessary to show the main jobs.
- (ii) Many candidates gave appropriate reasons and referred to low wages, manual labour and lack of skills or education. The best responses also referred to wages being unreliable and the jobs informal.
- (e) The final question differentiated well. Many showed a good understanding of the difference between the two possible solutions. As well as referring to quality of accommodation they mentioned other issues such as solution B would cause social unrest and provide no permanent solution. Weaker responses focussed on the information given and frequently just copied it, for which they gained no credit. They gained limited credit for realising that solution A provided a home whereas solution B did not do this.