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GEOGRAPHY

Paper 0460/12
Geographical Themes

Key messages

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

- follow the rubric correctly, answering only three questions, one chosen from each of ***Sections A***, ***B*** and ***C***
- study the whole paper and resources provided carefully before writing answers to their chosen questions
- answer all parts of the three questions they choose in the spaces provided, including questions involving the completion of maps or graphs (e.g. **6(b)(i)**)
- know how to respond to command words used and words which indicate the focus and context of each part, ensuring that irrelevant material is not included
- learn geographical words and phrases in order to define them and/or use them correctly in answers
- use comparative words to describe differences or compare features shown on source material
- write answers of an appropriate length by considering the mark allocations and space provided in the answer booklet
- write clearly and precisely, avoiding vague words or statements which need to be qualified or elaborated (e.g. pollution, overcrowding, facilities)
- attempt to develop ideas or link them to others when extended writing is required in those questions worth five or more marks
- use and interpret various types of graphs and diagrams accurately to support ideas expressed in answers
- interpret photographs, graphs and maps carefully and referring to relevant evidence in them.
- ensure that the answer is based entirely on the source material provided when the word ‘only’ is used in the question
- be able to describe a distribution from a map and/or describe the location of a specific feature
- have a wide range of case studies and choose them with care to fit the questions selected, including relevant place specific information whilst concisely answering the question set

General comments

A number of able and well-prepared candidates performed very well across the paper and showed excellent geographical knowledge and understanding, writing answers of a consistently high quality. As expected however there was a wide range of marks and most candidates, whilst not performing consistently across the paper, did make a good attempt at many parts of their chosen questions, enabling the paper to differentiate effectively between candidates of all abilities.

There was a very small number of rubric errors, though it was rare to see scripts where all six questions had been answered. Those few candidates making rubric errors tended to answer three or four questions from the six, selecting two from the same section rather than one from each section.

The presentation of answers from candidates was generally acceptable and answers were usually in an appropriate amount of detail. Occasionally answers worth a small number of marks were of excessive length and answers to questions worth more marks were too brief, however most candidates were guided by the mark allocations and space provided, the best responses being concise, yet detailed and accurate in content. Some candidates made use of the continuation sheets at the back of the question and answer booklet, however some needed to do so only because they had included too much irrelevant material in their answers.

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Questions 1 and **3** were the most popular questions, with **Questions 5** and **6** being of roughly equal popularity. There were good answers seen to all questions, including those requiring extended writing, particularly to the **part (c)** questions on overpopulation, the global impacts of deforestation, waterfall formation and the impacts of food shortages. There were some answers which included unnecessary general introductions with irrelevant information about the topic being tested, however the best of these answers were well focused, with developed or linked ideas and some place specific information. Weaker responses were sometimes poorly focused with brief lists of simple points, sometimes in bullet points, not all of which were relevant. Some candidates did not score marks consistently across the paper as they did not respond correctly to command words (e.g. 'describe' in **4(b)(i)** or 'compare' in **5(b)(i)** or key words such as 'global natural environment' in **3(c)** or 'relief' in **5(a)(ii)**).

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

Comments on specific questions

Question 1

This was a very popular question, answered by most candidates.

(a) (i) Most candidates gave an acceptable definition by considering the difference between immigration and emigration.

(ii) Many candidates found it difficult to calculate the total population change. Some candidates used the correct formula but mis-read the figures from the bar graph. Other candidates thought that that the negative change of –30 000 should be added onto the positive change.

(iii) Most candidates scored at least two marks and many scored full marks. The most common reasons which were suggested related to employment, education and health care.

(iv) Many candidates were able to identify problems faced by migrants, focussing mainly on language problems, jobs, discrimination, culture and housing. Weaker candidates focused incorrectly on the problems caused by immigration for the country rather than those faced by the migrants.

(b) (i) Where candidates read the key correctly, they usually scored at least two marks for the decrease in the 0–14 age band and the increase in 65 and over. More perceptive candidates also realised that despite the fluctuations over time the percentage of 15–64 year-olds stayed the same over the time period. Some candidates did not look at the key carefully and assumed that the top line represented 0–14 year-olds and the middle line 15–64 year olds. Thus they lost two marks.

(ii) The question discriminated well. Good candidates suggested a variety of problems with a focus on the workforce, costs of benefits and care, and lack of young people to defend the country, work and innovate. Whilst better candidates referred to the higher dependency ratio, weaker candidates suggested ideas which were too extreme such as a total lack of development and consequent economic decline. Others generally referred to problems caused by a large population or rapid population growth rather than referring to an increasing proportion of old dependents.

(c) The countries which were named by many candidates included India, Bangladesh and African countries such as Nigeria and Niger. Whilst many candidates scored at level two by simple development of ideas, few actually related these ideas to their named country by including place detail. Typically weaker candidates listed relevant problems but did not develop them whilst others vaguely referred to quality of life, resources and facilities. A significant number of candidates chose China and concentrated on how overpopulation was managed by the one child policy rather than answering the question.

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Question 2

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

(a) (i) Candidates usually identified the correct photograph.

(ii) Candidates usually ranked the services correctly though some reversed the order of Figs 2.2 and 2.3.

(iii) Few candidates understood the term 'sphere of influence' so many answers were irrelevant.

(iv) Few candidates showed any real understanding of 'settlement hierarchy'. From most there was vague reference to a diagram but little relevant detail.

(b) (i) The overall relationship between population size and service provision was not described by many candidates, however most made relevant reference to the largest settlement, Loughton, having the most services.

(ii) The most common correct reason given was that larger settlements have a greater demand for services. Few candidates were able to expand on that by referring to concepts such as the threshold population or sphere of influence.

(c) Many responses named an urban area but their answers did not relate to urban sprawl. These answers generally referred to urban problems which occur within the city, especially within the inner suburbs or the CBD and so were irrelevant.

Question 3

This was a popular question.

(a) (i) Most candidates gave the correct height, many stating 37.5 m. Some candidates did not look closely enough at the diagram and suggested 40 m.

(ii) This was not answered correctly by many candidates who did not know the terms. The most common errors were to identify A as 'emergent' and B and 'understory'.

(iii) The question proved to be challenging for most candidates. Weaker candidates did not score because they misinterpreted 'wildlife' as 'vegetation', so their answers were irrelevant. The most common correct answers focussed on whether wildlife could fly or climb, and the issue of safety from predators. Although some candidates did refer to food supplies and habitat, only the more perceptive ones make the necessary comparison.

(iv) Again this proved difficult for many candidates who showed their misconceptions. Some candidates thought that buttress roots were to get water or nutrients from deep underground, though well prepared ones did understand that they were to give support to the tall trees, or to extract nutrients from the upper layers of the soil. Also some candidates thought that drip tip leaves were to retain moisture rather than to remove excess moisture after heavy rainfall.

(b) (i) Most candidates gained some credit by referring to an identified part of Borneo by correctly using direction or referring to coastal areas. The question discriminated well between candidates.

(ii) There was a full range of quality of response from very detailed ideas to vague reference to agriculture and 'for wood'. Good candidates often suggested clearance for a specific use of the timber, mining, specified types of transport routes, settlement, and oil palm and pulpwood plantations. Some candidates confused oil palm with mining for mineral oil.

(c) The question produced a full range of responses. Candidates who did not read the question properly and recognize the global context focussed incorrectly on the local environment and answers about habitats, danger to species and flooding were obviously related to the tropical rainforest. Many then went onto global impacts but they lacked detail. The most common correct idea related to build-up of carbon dioxide and its impact on global warming. The highest quality answers linked these ideas with melting ice, rising sea level and loss of habitats in areas away from

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the rainforest. Named area were rarely suggested, the most common valid ones being Antarctica and islands such as the Maldives.

Question 4

Significant numbers of candidates answered this question, but it was not as popular as **Question 3**.

(a) (i) Although some candidates did identify the flood plain, common incorrect answers were levee and bank.

(ii) Many candidates did not seem to understand that they had to write about the landform – i.e. the flood plain. Correct answers tended to refer to it being flat and used as grassland or for grazing. Relatively few included references to it being wide or slightly above the level of the river. A common error was to attempt to explain its formation rather than describe its features as required.

(iii) Answers varied in quality. Better candidates identified flooding and deposition as the main causes but few gained the third mark by reference to lateral erosion, the retreat of the flood water or accumulation of sediments. Some weaker candidates confused their answers with oxbow lake formation whilst others referred simply to erosional processes rather than deposition.

(iv) Most candidates gained credit by identifying advantages such as fertile land for farming, water supply and fishing. The only disadvantage identified by many candidates was flooding.

(b) (i) Most candidates found the question difficult and many descriptions were vague, with irrelevant reference to meanders and settlements. Many candidates referred to tributaries rather than distributaries. Rather than describing what the map showed significant numbers of candidates gave explanations.

(ii) This was a good discriminating question. The best candidates gave a detailed explanation of the sequence of processes leading to the formation of a delta. Some weaker candidates scored their marks by reference to deposition and the river slowing down whilst significant numbers had little idea and wrote about river erosion or even marine processes such as longshore drift.

(c) The question produced a full range of answers. Good candidates gave a detailed explanation of the stages in waterfall formation. They developed their ideas by linking them together and supported their explanation with a well-drawn and labelled diagram. Many weak candidates identified the features of a waterfall such as hard and soft rock and plunge pool but were unable to explain how it was formed.

Question 5

(a) (i) Many candidates correctly defined subsistence farming, but a significant number confused it with arable or commercial farming.

(ii) Answers varied in accuracy. A small number described the valley and sides in sufficient detail to score both marks. Many candidates scored one mark for naming a valley. Weaker candidates gave vague answers about mountains and steep slopes.

(iii) Many candidates did not focus on relief but referred to temperature and soil. The most popular answer which gained credit was the idea of terracing on the valley sides. Few candidates described in sufficient detail what type of farming could be done on the flat valley floor.

(iv) The question discriminated well. Good candidates referred to ideas such as farmers being unable to buy food, having small land areas, having no access to a market to sell produce and being unable to afford various examples of inputs. Weaker candidates gave vague answers such as '*they not have enough money*' without explaining why this results in them being subsistence farmers.

(b) (i) Candidates found the question difficult. Some did not make comparisons between the two areas, and weaker candidates focussed on individual years rather than the overall trend. The most common correct responses were that of the increase in exports from the EU and the reduction from the USA, and the fact that each of the area's exports fluctuated over the period of time shown. Some identified the change in exports before and after 2014.

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(ii) Answers varied in quality. Weak candidates wrote vaguely about the 'weather' or 'climate' changing and many did not refer to the variation from year to year in reference to temperature, rainfall or sunshine. More perceptive candidates did emphasise the effect of these annual variations. Candidates generally scored better on factors other than weather. The most popular factors identified were changes in the use of fertilisers, variation in market demand, and the impacts of crop diseases and pests.

(c) The most common example of a country affected by food shortages was Sudan or South Sudan. Many candidates did not develop their ideas beyond identifying more deaths, malnutrition and the need for foreign aid, though better candidates developed their answers by linking ideas together to produce a more coherent response. Some candidates wrote in detail about what caused the food shortages which was irrelevant.

Question 6

(a) (i) Good definitions referred to both raw materials and an end product in their answer. Weaker candidates omitted one of the two or repeated the word 'manufacture'.

(ii) As is often the case photograph interpretation was done badly by many candidates, including the better ones. Many candidates did not score any marks because they described the possible impacts of the industry (e.g. air pollution), or attempted to explain the location (e.g. close to the coast for export), rather than referring to features of the actual industry which could be seen on the photograph.

(iii) Many candidates correctly identified the inputs, but significant numbers could not identify all three. Common distractors which were chosen included profit, transporting and processing.

(iv) Many candidates referred to the need to move raw materials and products and gained two marks. Some candidates also wrote about the need for workers to access their place of work. Some candidates identified perishability as a separate factor.

(b) (i) Most candidates scored all three marks by accurately completing the bar and shading correctly.

(ii) The question was a good discriminator. The question asked about the local, natural environment and those who read it carefully scored high marks by identifying many of the impacts highlighted in the mark scheme. Some weaker candidates gained credit by referring to one or two ideas such as a specified type of pollution or destruction of vegetation, however others wrongly referred to impacts on people or global impacts.

(c) Tourism was the most popular economic activity chosen in a variety of locations, especially Dubai. Whilst there were a limited number of detailed, correct responses many candidates focussed incorrectly on how the chosen economic activity affects the environment rather than how its effects are managed. The best answers suggested measures to do with managing coral reefs, limiting fishing, and saving water and energy. Many choices of area and economic activity were too vague, such as '*industry in India*'. If such answers scored this was usually at level one for ideas such as using renewable energy sources and air filters.

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GEOGRAPHY

Paper 0460/22
Geographical Skills

Key messages

- In **Question 1(c)** candidates had to identify features on, and complete, a cross-section (syllabus page 21). Although there has been some improvement, this was not well answered and is still an area for improvement.
- In photograph questions, such as in **Question 3(b)**, where the command word is *describe*, candidates should concentrate on what they can actually see in the photograph.
- The correct method for giving four-figure and six-figure grid references is described on page 21 of the syllabus. Candidates should use this method when answering questions.
- The physical geography questions were less well answered compared to those on human geography.

General comments

The response to the paper was generally very good with a number of very high-quality answers. Candidates had little trouble in completing the paper in the allotted time and few found it necessary to use additional pages for their answers. **Questions 2** and **3** were well answered. **Questions 4** and **5** were often poorly answered perhaps indication that physical geography is an area for improvement.

Comments on specific questions

Question 1

(a) Generally, candidates were able to score high marks on this section, showing good skills of finding features on the map and identifying them using the key. **A** was a *cemetery*, the road at **B** was a *dual carriageway* or *main road*, **C** was *coniferous woodland* or *scrub*, the height above sea level of the contour at **D** was *15 m* and feature **E** was a *path, route* or *trail*. The cemetery at **A** proved most difficult.

(b) Very few candidates were able to give the correct grid reference with many giving the wrong grid square. Most candidates were able to give the correct distance measurement of *2150 m*. The bearing was not easy to measure because that area of the map was quite cluttered with buildings. For this reason examiners allowed a generous tolerance of *8–12°* and most candidates were able to score the mark.

(c) The cross-section caused problems for many candidates. The feature at **X** was a *road*. The Ayrshire coastal path was between *12 and 15 mm from the left hand side of the section line*. Both of these questions could be completed by simply measuring distances on the map and section. The cross-section needed to be completed by a line rising to about 140–150 m above seas level the falling. Some of the better candidates also showed the minor rises and falls along the line.

(d) There were many tourist attractions which could be identified in South Bay and most candidates were able to give three of them. These included *golf, club house, beach, hotel, parking, walking route, public toilet, cycle route, viewpoint, lighthouse* and *marina*. When describing the physical features of the coastline the response was variable. Some candidates were able to score full marks by referring to features such as the *wide, sandy beach, rocks, wave cut platform, flat or gentle slopes, lowland, headland, bay* and *islands*. The only *cliffs* were those at Port Ronnald. Weaker candidates included human features in their answers.

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Question 2

(a) Most candidates were able to score high marks by referring to the areas and continents where the life expectancy was more than 74 years. These included *North America, South America, Europe, North Africa, Middle East, SE Asia* and *Australia*.

(b) Most candidates correctly calculated the average female life expectancy for Africa as *65.2 years* and correctly completed the bar graph by plotting *58 years* for Central Africa. Full marks were also common for **part (iii)** where credit was given for points such as *females lived longer in every region, Southern Africa had the biggest difference between males and females, Western Africa had the smallest difference, Northern Africa had the longest life expectancy for both males and females and, Western Africa had the shortest life expectancy for both males and females.*

Question 3

(a) Candidates gave a variety of suggestions for the urban zone where the photograph in Fig. 3.1 was taken. Credit was given for those who answered *rural-urban fringe* or *outer suburbs*.

(b) Many candidates scored full marks for describing the shopping areas. For Fig. 3.1 credit was given for points such as *shopping mall, large building, car parking, few people, trolleys, trees or plants* and *modern appearance*. For Fig. 3.2 credit was given for points such as *stalls* or *market, open air, lots of people, selling food or clothes, seating, traditional, pedestrianised, small shops* and *narrow street.* Occasionally candidates speculated about hygiene, the social background of the shoppers and the cost of the goods but no credit was given for this.

Question 4

(a) Many candidates scored two marks for noting that the location of the San Andreas fault was on or *near the coast on the west cost of the USA*. Relatively few correctly identified the type of plate margin as *conservative* (or *transform*). Almost all candidates correctly answered *Parkfield* for **part (iii)** and *North Coast* for **part (iv)**.

(b) When describing the predicted impacts of the earthquake in Southern Santa Cruz most candidates correctly quoted two of the intensity six effects, although some of the lower intensity values were also relevant. Intensity seven points were not correct and showed misunderstanding. Many candidates scored the mark in **part (ii)** by noting that the variation of number of deaths within a town could be due to *variation in population density* or *variation in building design*.

Question 5

(a) This were many weak responses to this question with relatively few candidates correctly identifying the prevailing wind (**A**), the river estuary (**F**) and the salt marsh (**D**).

(b) When suggesting ways in which the construction of groynes might affect the residents of town **P**, some candidates were able to refer to *visual pollution* or the *protection from erosion*. Full marks were rare and candidates rarely referred to the possible *effects on the tourist economy* or linked their answers to the fact that the groynes would *limit longshore drift*. Candidates rarely appreciated that the construction of the groynes at P would *limit the amount of sediment* reaching the nature reserve therefore potentially *limiting its size* and *damaging habitats*.

Question 6

(a) Almost all candidates were able to state the percentage of water used for agriculture globally as *70 per cent*. They were also able to correctly complete the bar graph in Fig. 6.2 with accurate use of the key.

(b) Candidates were able to suggest a variety of reasons for the possible changes in water use, although full marks were rare. Some argued that agricultural use would increase due to *more demand for food* and a *greater area used for agriculture* leading to *more irrigation*. Others argued that agricultural use would decrease with a general *decline in the agricultural sector* and *increased food imports.*

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GEOGRAPHY

Paper 0460/03
Coursework

There were too few candidates for a meaningful report to be produced.

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GEOGRAPHY

Paper 0460/42
Alternative to Coursework

Key messages

Here are a few messages to pass on to candidates for them to consider in their preparation. These have been suggested by examiners based on scripts they have marked:

- When answering Hypotheses questions that ask whether you agree or not, always give your opinion at the start of your answer before any supporting evidence. This will usually be *Yes, No* or *Partially True / True to some extent.* Do not just copy out the Hypothesis if you agree with it. It is important to make a decision and state it as well as provide the evidence for your choice. Be clear in your decision – expressions such as '*might be true', 'could be false*', *'true and false*' are too vague.
- When giving figures in an answer, always give the units if they are not stated for you, e.g. data evidence in **Question 2(e)(iii)** should refer to site numbers and km/hour. It is also important that your numbers are clear, e.g. a 4 can look like a 9; a 7 can look like a 1; sometimes a 2 looks like a 5.
- When shading graphs, use the same style as that provided in the question and make sure your pencil gives a good dark image. Check you understand the scales used and the importance and style of any plots already provided, e.g. on **Question 1(d)(i)** some candidates shaded the *'slight problem'* group in horizontal lines instead of the vertical lines shown in the key.
- When you think you have finished, go back and check that all graphs and tables have been completed; too many candidates lose easy marks by missing out graphs, e.g. **Question 1(b)(i)** and **Question 1(c)(i)**.
- Read questions carefully and identify the command word, e.g. *Describe..., Explain…* A question that asks *'Why?*' requires a reason to be given not a description.
- If a question asks for data, e.g. **Question 1(d)(iii)** then you must use statistics from resources whereas evidence could be a qualitative answer.
- If there is a reference to using a Table that contains exact figures and a Graph that contains plots, the figures in the table should be the ones referred to in evidence rather than estimating from a graph.
- Take into account the marks awarded. Examiners do not expect you to be writing outside the lines provided, so do not write a paragraph when only two lines are given – this wastes time.
- It is important that, when you write the remainder of your answer elsewhere, that you make it clear that you have done this and also which part answer refers to which question.

General comments

The vast majority of candidates were able to demonstrate what they know and understand in this paper. It appeared to be a positive experience for most candidates. Most attempted every question and there was no evidence of issues with time although a small number did omit graph and table completion questions missing out on what should be straightforward marks. The overall range of marks was from 8–53 with weaker candidates scoring on the practical questions such as drawing graphs or diagrams and making choices from tables. Those of higher ability scored well on the more challenging sections requiring judgment and decision-making on Hypothesis choices with evidence and other written answers.

Question 1 on tourism in Salina National Park in Malta was slightly more accessible to candidates than **Question 2** on collecting weather data using a Stevenson Screen – physical geography questions do seem to be consistently less well-answered than the human geography questions. The mean mark was 36.4 and the paper was judged as fair and appropriate with no time issues for the 316 candidates whose scripts were submitted.

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

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Most points for teachers to consider, when preparing candidates for future Paper 42 questions, relate to misunderstanding or ignoring command words, the use of equipment in fieldwork and the importance of experiencing fieldwork – even if it is only in the school grounds or simulated in the classroom. Particular questions where candidates did not score well often related to them not fully reading the question or just completely missing out straightforward graph completions. Such difficulties mean that some candidates do not obtain a mark in line with their geographical ability and is an area that centres should work on through such strategies as regularly using previous papers so that candidates get used to the style and demands of this paper.

Centres need to realise too that, although this is an *Alternative to Coursework* examination, candidates will still be expected to show that they know about fieldwork equipment, how it is used and fieldwork techniques. Some fieldwork experience is important even if there is only limited opportunity within the centre. Familiarity with maps, tables and the various graphs listed in the syllabus is also important for this examination.

Comments on specific questions

Question 1

(a) (i) Most candidates did well on this question starter. They tended to focus on Questionnaire 1 having tick boxes/options and it being more polite with a reason/purpose given and there being fewer questions than Questionnaire 2. A few answered from the Questionnaire 2 point-of-view which is not what the question asked and was credited only if it compared answers as to why Questionnaire 1 was better than why Questionnaire 2 was not so good. Most mark scheme answers were seen.

(ii) This type of question has been asked frequently on this paper and many candidates answered it by writing that you should ask 'random people' or 'ask people randomly'. This is basically just repeating the question about random sampling without giving any idea that they know what random sampling involves, e.g. asking anybody or using a random sampling generator to create numbers that are then used to sample the people. *'Ask anybody'* was the most popular answer for one mark. This was the least well answered sub-section on **Question 1** with a few describing systematic sampling. Centres need to focus on the three sampling techniques – systematic, random and stratified – in the syllabus and candidates need to be clear about the different ways in which each works.

(iii) The better answers focused on the advantage that there would be plenty of people in the car park to ask – though not necessarily, as some stated, a wide variety – but that a disadvantage would be that they would only be sampling those that arrived by car missing out on any others who, for example, walked from close by or used public transport. It was accepted that people would not be willing to answer questions either through tiredness or being too busy/in a rush. It was also accepted that asking questions in a car park bore some risk of accidents though this was not really in the spirit of the question.

(b) (i) Almost all candidates drew the two bars accurately for 2 marks; a few missed the shorter one bar plot which was very odd and a disappointing minority did not attempt what should have been two easy plotting marks.

(ii) This was well done by candidates who recognised that most people came from 11–15 km and that least candidates came from more than 20 km. A few candidates made no judgments about most/least but just described in a list the numbers from each grouped distance.

(c) (i) Almost all gave the correct answer of 27 here; however a significant minority did not attempt the question.

(ii) Most candidates completed the divided bar graph correctly including shading the three parts accurately. A few plotted the bars from the top instead of the bottom or plotted at 55 per cent instead of 65 per cent and – strangely – a few did not shade the section between 78 and 80.

(iii) Most candidates correctly identified the hypothesis as 'true'. They then scored marks by comparing the most popular activity from one age-group with that of another age-group. It was important that they identified that it was the most/main reason for visiting; judgements were required with evidence – just listing that, e.g. 'under 20s enjoyed cycling while over 60s enjoyed memorial

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gardens' makes no judgments about it being the most popular activity for that age-group or it being more popular than any other age-group. This is just describing what the table shows. A number of candidates failed to give any supporting statistics to get the data mark.

(d) (i) Most candidates did this well plotting the lines accurately and shading in the order of the key as required. Any errors were usually due to plotting the sections in a different order to that required.

(ii) Almost all candidates chose the correct answer of 'bringing money into the local area'

(iii) This question was the second least-well answered in **Question 1**; candidates did not spend enough time having a good look at the data in the tables before giving a judgement. Quite a few did decide that there were more positives than negatives for one mark but failed to give any detail about the residents' views on the listed problems and there were no stats included to support statements.

(e) Most candidates could suggest solutions to the Litter problem with increasing the number of bins and giving out fines as the most popular options by far. Less successful were the ideas to solve traffic congestion; it was clear that many candidates had no concept of the size of a National Park and the impossibility of imposing their solutions many of which would only be applicable to a small-scale managed park. These inappropriate ideas included widening roads, more traffic police, building flyovers, banning large vehicles and creating one-way systems. Better ideas included more car parks and improving public transport. Some suggested *'using'* or *'encouraging more use'* of public transport or bins, but these were too vague; ideas involving some action were needed.

Question 2

(a) (i) It was pleasing to see most candidates gaining three marks on this question about the Stevenson Screen. The better answers related to it being white to reflect heat, it being above the ground to avoid the influence of heat radiation from the ground and having vents to allow the free flow of air. The most common incorrect answer was for it being above the ground to avoid disturbance by insects or animals.

(ii) Again the vast majority knew that the two most suitable positions for a Stevenson Screen would be '*away from buildings'* and *'on the grass lawn'.*

(b) The correct answers 3, 4 and 7 were suggested by the majority of candidates. Location 4 was the most common correct answer; incorrect site numbers were suggested more for the two other locations.

(c) (i) It was pleasing to see that most candidates had a good understanding of the advantages of using the digital thermometer over the traditional thermometer. It is important that candidates are aware of the strengths and weaknesses of both. The most common answers were that it was more accurate and quicker as well as being more portable with less chance of making an error in reading. Weak answers that were too vague or inappropriate included that it was '*easy to use'*, *'more reliable'* and that it was *'cheaper.'*

(ii) Most candidates struggled to give a convincing reason why the temperature was measured at the same time at all seven sites. Many seemed to think this was to calculate an average rather than remove the variable of time so that a true comparison at the same time can be made. Weak answers included this made it '*more accurate'* or '*more reliable'*.

(d) It was pleasing to see so many candidates chose the correct answer of *'partly true'* for the hypothesis mark. The better candidates clearly stated the location of numbered sites and the temperatures that indicated that the hypothesis was true but in other sites it was not; both were needed for full credit. Some candidates just listed the temperatures at different sites without stating what they proved; a few gave statistics from sites the same distance away from buildings which did not support their conclusion.

(e) (i) Most candidates correctly chose *'anemometer'*; the most common incorrect choice was *'barometer'* although all the other distractors were chosen.

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(ii) While the majority did plot a bar correctly at 51/52 mm, quite a number misread the scale and plotted an incorrect measurement often way above or below the correct location. Only a very small number did not attempt this plot which was pleasing to see.

(iii) Around half the candidates did well on this by identifying that the hypothesis was *'false'* and then by stating that the wind was faster away from the buildings and backing this up with evidence from the extremes, e.g. Site 1 (away) at 13.2 km/hr compared with Site 4 (close) at 0.4 km/hr. A few gave correct statistics and site numbers but did not make a statement comment e.g. about the wind being faster at sites 1 than 4, which was needed to back-up their decision that the hypothesis was incorrect.

(f) (i) It was pleasing to see that the vast majority correctly chose Row 3 as the correct definition of relative humidity, i.e. *The amount of moisture in the air as a percentage of the total moisture it could hold at that temperature.* Rows 2 and 4 were often chosen in error.

(ii) This question proved a good, challenging discriminator in that it was the least successful attempted by candidates on the whole paper. A significant minority did not attempt it at all! Very few realised that measuring RH involved taking the temperatures of both wet- and dry-bulb thermometers and then calculating the difference. Only a few could go beyond that referring to how they would use an RH Table to calculate the RH. Some credit was given for taking the readings from both thermometers but many candidates then did odd things with these figures e.g. dividing them or working out an average. Too many candidates just explained how the apparatus worked.

(iii) Nearly all candidates correctly identified Site 1 as the site where Relative Humidity would be the highest. Incorrect choices included Site 4 and occasionally Site 7.

(g) Almost half of the candidates clearly knew about how to set up and use a rain gauge and gained 3 or 4 marks. Weaker candidates often scored just one mark for knowing something about the best site e.g. *'away from trees', 'on flat ground'* although the idea that it should be on top of a roof was not credited. There were vague answers referring to the gauge being above or under the ground and candidates rarely knew the function of the separate components such as the measuring cylinder and funnel. There were some incorrect suggestions as to when the rain gauge should be checked. The best answers were '*at the same time each day'* or *'every 24 hours*'; too many seemed to think it was necessary to measure after each rainfall.

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