

GEOGRAPHY

Paper 2217/11

Paper 1

General comments

The paper was considered to be appropriate for the ability range of candidates and it achieved a high degree of differentiation. **Questions 1, 2 and 5** were very popular, **Question 3** was the least popular. Whatever questions candidates chose there were plenty of questions where for A and A* grade candidates were able to show their abilities, whilst the less demanding and/or more structured tasks provided all candidates with the opportunity to achieve positively in some areas, particularly those involving the use and interpretation of the source materials. Many Examiners were impressed by the excellent geographical learning which had taken place, and once again commented on the year on year improvement in the standard of work from many Centres. There were of course other Centres which, for a variety of reasons submit scripts from candidates whose performance was generally weak, and where candidates for a variety of reasons seemed poorly prepared for an examination of this style. Some of these Centres were from new Centres as IGCSE continues to grow, others simply seemed to be entering candidates who struggled to cope with the demands of the paper, perhaps through lack of effort, ability or linguistic problems which they experience answering an examination in the English language. As the detailed comments on questions below are considered the strengths and weaknesses of candidates are highlighted, and careful consideration of these comments and the advice therein should be invaluable in preparing candidates for future examinations.

However the following items of general advice, which many good teachers of IGCSE Geography will have seen before, should be considered, and offered to future candidates who should:

- make the choice of questions with care, making sure that for each question they choose they have a case study about which they can write with confidence.
- answer the three chosen questions in order, starting with the one which they are the most confident with, and finishing with the one which they are least confident with (in case they run out of time).
- read the entire question first before answering any part, in order to decide which section requires which information to avoid repetition of answers.
- highlight the command words and possibly other key words so that answers are always relevant to the question.
- use the mark allocations in brackets as a guide to the amount of detail or number of responses required, not devoting too much time to those questions worth few marks, but ensuring that those worth more marks are answered in sufficient detail.
- think carefully about their answers to case studies, which provide a good opportunity for well prepared candidates to score high marks. The key is to ensure that the focus is correct rather than including all facts, particularly those which are irrelevant, about the chosen topic or area, and developing each point rather than writing extensive lists of simple points.
- use resources such as maps, graphs, diagrams and extracts carefully. However there is little point in copying out parts of resources. Use appropriate facts and statistics derived from resources of course to back up an answer, but always aim to interpret them by making appropriate comments.

Comments on specific questions

Section A

Question 1

- (a) (i) Most understood that international migration involved the movement between countries though some referred to continents. Some candidates tried to define by repeating words 'migration' and 'international' which is not a good way to show knowledge of what the term means.

- (ii) Vietnam was a common error in but the vast majority of candidates selected two countries and were able to demonstrate the skill of using proportionate flow lines.
 - (iii) The majority of candidates gave good answers, referring to pushes such as employment, education and health care. Some, however, did not read the question carefully and described pushes rather than pulls, and other gave weak answers such as "better services/facilities/amenities without qualification.
 - (iv) Many candidates showed an excellent understanding here of why the quality of life remained poor, referring to issues such as lack of skills/qualifications, low pay, discrimination and the problems caused by lack of finances, particularly in relation to accommodation. A few weak candidates just described life in ghettos/squatter areas rather than explaining why all too often the immigrants to MEDC are forced to live there and some referred to reasons why they have moved to MEDCs.
- (b)(i) The distribution of states was generally poorly described. Too many candidates seemed unfamiliar with the command 'describe the distribution' just listing states or attempting explanations, though those candidates who had rehearsed this skill gave clear distributions referring to the south-east near the Atlantic Ocean for example, the north east and the west.
- (ii) Many candidates showed a good understanding of why people are leaving urban areas, though a minority wrongly described pull factors,
- (c) Whilst some excellent case studies were seen there were many candidates chose a country (e.g. Kenya) not all of which has a low population density. Others choose large, sparsely populated areas such as the Sahara desert or Antarctica, which is fine, however those who did so found it difficult to introduce a place specific element into their responses. Some candidates answered the question correctly and chose a suitable area, however their points were not developed (e.g. 'it is dry', it is difficult to get to', thus not achieving higher than Level 1 (3 marks). Some candidates lost out because they attributed the low density to lack of amenities/entertainment etc. instead of more primary reasons for lack of people and others offered little more than the irrelevant notion that places are empty because everybody has migrated. Many weak answers read the question as 'low population' and wrote about low birth rates/high death rates, or government policy such as China's one-child policy, whilst others entirely focused their answers on migration away from an area, often one which is quite densely populated (e.g. Mexico to USA.) or indeed an urban area which was clearly not going to have a low population density (e.g. New York).

Question 2

- (a)(i) The population increase was well calculated by most candidates, though some just put ' from 1.4 million to 2.2 million'.
- (ii) Almost all candidates chose two correct areas of Amman where high rise buildings are being constructed.
- (iii) There was a range of marks here, some excellent answers referred to lack of space and/or the fact that high rise building saves space, cost of land and demand for land for residential or business use. Weak candidates chose a section of the extract to copy out which showed no understanding and therefore gained no marks.
- (iv) This was poorly done by many candidates. Few candidates actually knew what infrastructure meant as they wrote about housing and/or jobs. Even those who referred to specific services such as schools, hospitals or traffic, or utilities such as water or electricity, did not really refer to 'pressure' on these services, despite the fact that these are likely to be problems which many candidates may well be experiencing in their daily lives in crowded areas where they live.
- (b)(i) Most candidates recognised the land uses from the photographs though some answered without linking them to the letters A, B and C.
- (ii) This differentiated well, with able candidates using the evidence in the photographs to write relevant details about access to shops, housing and schools, and/or the provision of good roads, access to taxis and work. Weaker candidates did little more than repeat their answer to the previous question, rather than elaborating in terms of how these features would enhance quality of

life, whilst others generally wrote about the advantages of urban life, ignoring even the photograph (e.g. 'presence of health care facilities, factories for employment etc.).

- (c) This case study was well answered by many candidates, usually in the context of LEDC, though to achieve the highest level they needed to refer to both causes and solutions. A large number of weak candidates wrote about squatter settlements but their existence is not in itself a cause of a shortage of housing, more the result of it. The best answers referred to real schemes in cities such as Rio de Janeiro, Sao Paulo, Delhi and Mumbai, however those schemes which merely improve the quality of housing, rather than reduce housing shortages (e.g. provide electricity/sanitation/fresh water) were not relevant unless linked in some way with the construction of more places to live. A number of weaker candidates tended to reproduce the content from (a), with obvious limited success.

Question 3

- (a) (i) Most candidates recognised the arch.
- (ii) Most candidates knew the definition of hydraulic action and corrosion, although some confused the latter with corrasion.
- (iii) Few candidates could describe the features of the shown in the photograph and many just explained it's formation, often in great detail but scored no marks as this was not what the question was asking.
- (iv) Well prepared candidates could describe how constructive waves created a beach, though most did little more than stating that the swash was stronger than the backwash, and many candidates included irrelevant details and/or diagrams about longshore drift.
- (b) (i) For some candidates this task was just guesswork, though many recognised the atoll if not the fringing and barrier reefs.
- (ii) This differentiated well with some excellent answers given from well prepared candidates relating to ideas such as temperature and light condition for example, which were very well developed and exemplified. Weaker candidates omitted the question or just guessed, often trying to relate the existence of coral reefs simply to the presence or absence of human activity.
- (c) This was remarkably poorly answered by virtually all candidates, many writing spits or about dunes being formed by longshore drift or constructive waves, rather than the wind, and virtually none knew of a named example.

Question 4

- (a) (i) There were many correct answers yet other definitions were inaccurate as they failed to include any reference to either 'atmospheric conditions' or 'in situ', clearly key points as references to 'rocks being broken into smaller pieces' could just as well be definitions of erosion.
- (ii) This was answered well though a few candidates put 5C for the second part of the question.
- (iii) Many candidates used the resource well to explain how plants grew from seeds in cracks, then as they grew applied pressure to break up the rocks. A few also made relevant points about burrowing animals and acids from decaying vegetation. Some candidates strayed into explaining freeze-thaw, clearly not a form of biological weathering.
- (b) (i) Landscape description mainly focused on the central crack and the tree growing out of the top, which were worthy of credit. A few mentioned scree. A number wrongly focused on the background, identifying fields, a settlement and electricity pylon. As in 3 (a) (iii) there were many candidates who appeared to be unfamiliar with the skill of describing features, attempting instead to explain it's formation or describing weathering processes which were occurring, thus repeating information from (a) (iii) and/or (b) (ii).

- (ii) Again many candidates wrongly wrote about freeze-thaw rather than chemical weathering. Of those candidates who did understand that this involved a chemical process, most mentioned acid rain and its reaction with limestone but relatively few candidates were fully conversant with the reactions which resulted in the solution process. There were a few impressive responses with reference to the reaction of rain water with carbon dioxide producing carbonic acid, and its conversion to calcium bicarbonate in solution, however most were satisfied with 'acid rain dissolving limestone'.
 - (iii) This question differentiated well, tourism and farming being popular suggestions, and some mentioned the educational value of such areas. Many answers were imaginative in terms of suggestions. The impression given was that such landscapes were largely unfamiliar to candidates and ideas suggested, whilst often valid, appeared to be more speculative overall.
- (c) Drought and tropical storms was the most popular choices here, though there were some examples of floods. Candidates who focused on specific examples (e.g. New Orleans – Hurricane Katrina, Bangladesh flooding) tended to achieve more success than those who chose larger areas (e.g. the Sahara desert). The question asked for causes and impacts and the latter tended to be far more effectively covered than the former. For drought and tropical storms the causes were often unstated or very superficially covered (most simply stated what a drought or tropical storm was), however some candidates wrote well, and in great detail, about the causes of their chosen flood event, especially examples such as Bangladesh.

Question 5

- (a) (i) Providing candidates showed their understanding by giving a little detail about the sectors (with many naming them) they scored well.
 - (ii) Virtually all candidates gave good examples of jobs in the primary and tertiary sectors, with farming/mining and teachers/doctors being popular choices.
 - (iii) Most candidates could, to some extent, use the compound graph provided. The changes required were generally well described for the primary and tertiary sectors, but many missed the changes in the secondary curve (i.e. increase followed by a decrease). The answers to the question needed a dynamic approach – it was about 'change'. Weak candidates simply stated initial and final percentages.
- (b) (i) This was generally well answered, apart from weak candidates who were not conversant with the terms and stated that 'cattle farmers' were an input and 'markets' an output.
- (ii) Likely benefits included jobs and money to spend and many candidates expressed these ideas well. A number also developed pertinent points about the improvement of the infrastructure and the multiplier effect of the factory within the area. Others focused too narrowly on the availability (or reduced cost) of beef in the area, a credit worthy idea but not sufficient to score all the available marks.
 - (iii) This question differentiated well and there were some very perceptive answers with references to atmospheric pollution (from the factory and transport), visual pollution and pollution of water courses. Some referred to the loss of natural vegetation and habitats for the construction of the factory, though many focused on environmental problems as a result of cattle grazing rather than the growth of manufacturing industry. There were even some strange references to the extinction of cattle! The requirement to focus on 'natural environment' was ignored by too many candidates, who referred to problems for the local people such as noise, smell and traffic congestion.
- (c) Here there were some excellent place-specific answers from case studies such as Silicon Valley and the M4 corridor, the best candidates developing their ideas in relation to their chosen case studies. Many other answers were too vague/general and did not specify the hi-tech industry despite clues in the question. As the question asked specifically about hi-tech industry answers about car manufacture or other types of manufacturing industry were not acceptable, though candidates could gain some credit at Level 1 for generic ideas relating to the factors influencing industrial location.

Question 6

- (a) (i)** Most candidates interpreted the graphs correctly.
- (ii)** Most candidates knew commercial farming involved selling, though some expressed their understanding by reference to profit or export. International tourism was also known by most candidates, though some did not show an understanding of 'international' dimension or indeed 'tourism'. A repeat of the word 'international' was insufficient for the former, and for the latter 'moving to another country' could be migration not tourism.
- (iii)** Most candidates recognised the decline in agriculture and the increase in tourism and some were able to gain full marks by giving accurate figures as evidence. As in 5 (a) (iii) some candidates ignored the requirement to consider 'change' and some candidates poorly judged the percentage figures despite the clarity of the graphs.
- (iv)** This was generally poorly answered. Virtually all candidates wrote about exchange of foreign currency into Turkish currency, rather than how foreign currency would be earned by visitors paying for hotels, specific goods and services or transport.
- (b) (i)** Many candidates use the climatic statistics to focus on the dry summer conditions posing problems for farmers, however many other references to climate were of little significance (e.g. temperatures, sunshine hours). Some candidates correctly used the photograph identity difficulties caused by steep slopes and rocky outcrops, however it was unusual for candidates to score the full three marks.
- (ii)** Generally the resources were more effectively used in this question than in (i) as references to temperatures, rainfall and sunshine hours were all valid. Various attractions were stated using photographic evidence (particularly in relation to the sea), however references to hotels, or a beach, or culture were not accepted as the question demanded only the use of evidence in the resources provided.
- (c) (i)** This was done well by many candidates, and there was a sense that many were writing from personal experience, especially in political terms. Sound choices were made by many candidates at a country scale where there are food shortages (e.g. Zimbabwe, Ethiopia, Sudan), though place specific details were omitted by all but the most well prepared candidates. There was an excellent understanding shown by perceptive candidates that food shortages were not only the result of adverse physical conditions, but could also be the result of policy decisions, some countries having a large export trade in food while starving their own people. It is hoped that the political leaders do not catch sight of many of these responses....on second thoughts perhaps they ought to see what the future electorate thinks! Weak candidates identified broad area examples such as 'Africa' and made weakly developed, simplistic points at Level 1.

GEOGRAPHY

Paper 2217/02

Investigation and Skills

General comments

Candidates were entered from 47 Centres across 21 countries.

In **Section A**, **Question 3** proved to be comparatively easy. Greater difficulty was had with **Question 1**, particularly **part (f)** and **Question 4(c)**.

In **Section B**, **Question 7** was a more popular choice with a ratio to **Question 8** of nearly 5:1. However, the distribution of marks achieved for these questions were very similar. Those attempting **Question 8** were scattered across the Centres.

Comments on specific questions

Section A

Question 1

In **part (a)** the location of the factory, slightly NE of the junction of the grid lines, caused many candidates to use 1 for the third and / or sixth digit of their grid reference. Careful measurement clearly shows that all parts of the factory symbol fall within 2 mm of the grid lines, giving a correct answer of 280830. A few candidates had not noticed the symbol for the building and had instead given the location of the Fcty abbreviation.

The two places for the bearing in **part (b)** were deliberately chosen to be close to the grid line, to assist with the accuracy of the measurement. It was also possible for the answer to be estimated without the use of a protractor. Thus a tight tolerance, of 178 - 180°, was applied and it was pleasing that many candidates were within this range. There were, however, some candidates who clearly did not understand what was required, while a few did the bearing from the wrong church causing their answer to be 180° out.

The distance measurement in **part (c)** required the candidates to follow the road, and those that took the straight line distance fell short of the 5700 - 6000 m that was accepted. Most candidates had an answer in metres but measurements were not always made with sufficient accuracy.

Most candidates found **part (d)** relatively easy, and were able to correctly use the key to name market, post office, church, police station, School and health centre. Occasionally there were mistakes, which appeared to be as a result of trying to guess the abbreviation rather than having the wrong map location.

In **part (e)** most candidates mentioned Morgans River and many also noticed the small conical hills, which some referred to as knolls. However some interpreted the shape of the contours as a depression, which they had taken from the key without noticing the different colour used for the lines. Candidates commonly scored two marks for this section. They could have gone on to mention the pond, direction of river flow, the height of the land (using the spot heights) or the fact that the square contains low land. It was necessary to mention both relief and drainage for three marks.

Candidates found **part (f)(i)** particularly difficult. Many simply made a list of land use but did not refer to pattern in any way. The idea of pattern could have been approached in a number of ways, to give an indication of the location of the land use. For example, "there is woodland across the northern edge of the area" or "most ponds and lakes are on the pasture land". The most common observations, made by the candidates, were that the buildings were along the roads and the cultivation next to the buildings. This led them into **part (f)(ii)** where many correctly named linear for the pattern, with the reason being the location along the road. However, the second pattern was often given as nucleated, rather than dispersed or scattered for farmers to locate on their cultivated land.

In **part (g)** most candidates noted the presence of woodland and the high height of the land. Responses also mentioned the steep slopes and the short supply of surface water, roads and agricultural areas. Some candidates carried on with the misinterpretation of the contour lines seen in **part (e)** and stated that the area was covered in depressions.

Question 2

In **part (a)** many candidates correctly stated that the minimum temperature was 12°C, and most of these went on to give 13°C as the diurnal range. Some, however, gave 15°C (the actual temperature) in **part (a)(i)**. A correct calculation based on this figure was accepted in **part (a)(ii)**.

The graph completion in **part (b)(i)** was straightforward and most candidates had no trouble with this, but in **part (b)(ii)** the answer of Day 1 was as common as the correct answer of Day 2. This was perhaps due to either misreading or misunderstanding of the word "cloudless".

In **part (c)** candidates had to apply their knowledge of a Stevenson Screen to the particular requirements of a thermometer. Many appreciated the need to record the shade temperature and the fact that the elevated position avoids the influence of the ground temperature, while the white colour reflects the direct sunlight. Some also mentioned the need to keep the instrument dry, whilst maintaining good air circulation through the slats or louvres. However, a few considered the screen to be necessary to protect the thermometer from the fluctuating outside temperatures. This seemed to be due to thinking that the thermometer had to continually register the maximum temperature.

Question 3

In **part (a)(i)** it was necessary to go round, or at least through, each number 7 without enclosing a number 6. This was fairly straightforward though some candidates missed the 7s by Oakland, while others, in including these, also included the 6s adjacent to the coast. Some candidates were not sure if they should continue their lines across the areas of water, even though the given isoline could be seen to do this.

In **part (a)(ii)** an X anywhere within the isoline enclosing the 8s was accepted.

In **part (b)** candidates needed to recognise that Monterey would have experienced Level 6 on the Mercalli scale, so that they could select the relevant information from Fig. 6. Most candidates did this successfully.

With the characteristics of Level 6 in their minds from **part (b)**, most candidates were able to recognise these characteristics within the description in Fig. 8 for **part (c)**, and most picked out the straightforward evidence of having trouble walking and pictures falling. The best answers were given by those who explained why it was not enough for Level 7 but was more than Level 5. However, it was possible to obtain the three marks without going into this detail.

Question 4

Most candidates chose the sea, the mountains and the forest for their three environments in **part (a)**. This coupled with an appropriate leisure activity for each was fine for the three marks available here. A further possible environment was the park / playing fields in the city, though not the buildings themselves, as was suggested by some, invariably coupled with an indoor activity.

In **part (b)** many candidates correctly located the housing area at A, the CBD at B and the industrial area at C. Most pointed out the difference in building size between A and B, though for C evidence tended to be more vague, with comments such as "it is away from the housing" or "near the sea for dumping waste". Relatively few noted the docks or port.

Few candidates scored marks in **part (c)** since most were trying to make judgements on the zone arrangements rather than the deviation from the circular pattern, caused by the coastal site and the presence of the high land. It was necessary to focus on the overall pattern, rather than trying to examine specific details, such as cost of housing, which could not be deduced from the photograph.

Question 5

In **part (a)** most candidates had obtained the correct figure of 1.0 million, though not all had written 1.0 million, so had clearly not stopped to consider if their answer was realistic.

In **part (b)** many candidates correctly selected the age group of 0 - 4 for Morocco and 25 - 29 for Spain. However, some had amalgamated the age groups, perhaps as a result of looking ahead to the next part of the question.

For **part (c)** it was simply necessary to compare Morocco with Spain in each of the age groups. Thus it could be deduced that Spain had more old dependents while Morocco had more young dependents and more dependents overall. Most candidates made at least two of these points.

In **part (d)** most candidates noted the more obvious point that life expectancy is longer in Spain. However, very few went on to point out that women live longer than men in both countries. Instead candidates filled the space with reasons for life expectancy or comments on birth rate or death rate.

Question 6

The printing of the graph lines on Fig. 11 meant that particular care was necessary in completing the graph in **part (a)**. The most accurate approach was to measure with a ruler to locate the subdivisions. A fairly generous tolerance was allowed.

The simplest approach to **part (b)** was to compare each of the parts of the graph in turn, thus deducing that India has more arable, while Brazil has more forest and more in the "other" category. Some candidates, however, took arable as land use, forest / woodland as vegetation and did not consider the fact that "other" was also representing a land use.

For **part (c)** there were many possible answers. However, it was important to ensure that the three suggestions were actually different land uses and not parts of the same land use or synonyms. Thus "houses", "shops", "offices" would all come under settlement / urban and would only score one. "Industry", "roads", "pasture" would be one way of scoring three marks.

Section B

Most candidates found this examination quite challenging and less accessible than previous sessions; for a change the physical geography question on rivers appeared to be tackled more effectively than the question on urban areas and traffic flows. There were some very good performances from individual candidates with a number scoring over 40/60 marks; the number scoring more than 50/60 was less than in previous sessions although those scoring less than 20/60 were about the same.

The overall range of marks went from 3 to 54/60 – down on previous years - with weaker candidates scoring on the practical questions, such as drawing graphs, and those of higher ability scoring well on the more challenging sections requiring explanation and judgement.

There is less general advice to be given for areas for improvement with this paper as with others. As there are no choices to make, it is difficult to miss sections out. There were no reports of time issues as the booklet format does not allow or encourage over-writing of sub-sections – though several candidates wrote lengthy answers all over the paper and on additional sheets. Most points for teachers to bear in mind, when preparing candidates for future Paper 4 questions, relate to misunderstanding or ignoring command words although there were some topics this year which were universally not well answered. These included sampling techniques (as mentioned in previous reports), measuring techniques – both traffic and rivers, processes of erosion and investigating human impacts on rivers.

Command words tell the candidate exactly what is required. Too often they appear to be ignored as irrelevant. For example **Question 1 (b) (iii)** asked candidates to *Describe the pattern of the total number....* Most candidates wrote about the total at the different times of the day instead of the total given at the end of the table on the insert sheet. In **Question 2 (e)** some candidates wrote about floods as an impact of the river on people – the question asks about the impact of people on the river.

Comments on specific questions**Question 7**

- (a) (i) This was not done well because most candidates just rewrote the information provided. Some referred to “each pair” as a requirement to discuss how all 4 pairs would carry out their counting at each different site. The best answers showed practical awareness in having one candidate on each side of the road, each counting cars in or out, and recording these as a tally to total for the 10 minutes.
- (ii) There were some weak answers here – just stating that it is more reliable, accurate or representative does not really explain why 10 minutes was chosen. Examiners were looking for practical responses relating to the time that candidates could pay attention or not get bored plus the fact that 10 minutes would be a reasonable time to gain an estimate of traffic flow and could be multiplied easily to estimate flow per hour.
- (b) (i) The bar graphs were accurately drawn with the correct shading although some candidates created their own shading or did not shade. A small number drew their own graphs below Fig. 1 ignoring the axes provided. In general the 175 bar was the one that was the least accurately drawn.
- (ii) Almost all candidates correctly listed the roads in the right order. A few gave site numbers which could not be credited as the table clearly states “Name of road”.
- (iii) Too many candidates gave a history of all traffic flows in and out of individual roads at the three times of the surveys instead of just referring to the totals at the end of the table and describing how the pattern varied overall. The best candidates did recognise that Kingsway Road was busiest and quoted figures and also, in general, more people were leaving the centre than going in except for Parkway. A number focused on patterns in relation to compass directions which was inappropriate to the total of traffic flow in and out of the town centre and more appropriate to (iv) which did relate to directions.
- (iv) Most candidates agreed with the Hypothesis and could relate the traffic flow to either compass direction e.g. more traffic flowing in the South and West, or to pull factors such as the major city or the railway station which would again influence traffic flow in certain directions. A number wrote about single streets and compared the flow in and out along that street which was not credited as the hypothesis was about flows from the town centre only.
- (c) (i) Apart from a very small number of candidates, the flow arrows were completed for full marks by virtually all candidates and shaded correctly. A surprising number put the direction of flow on the wrong end but that was not penalised in the mark scheme.
- (ii) The vast majority recognised the contrasting flow in and out along Independence Way for full marks. A number listed other streets and some wrote answers that referred to when there was less traffic rather than more traffic flows. Some just “lifted” and listed the data off the resource without any judgements about more or less traffic at certain times so gained no marks.
- (iii) Most candidates did agree that the Hypothesis was correct and then pursued two different routes to justify it both of which were acceptable. Some explained why the traffic would vary at different times e.g. rush hours to work/home in the morning/evening. Others supported their decision by using the data to agree that there was more or less traffic at certain times. A few mixed both approaches which was acceptable.
- (d) (i) There were some sensible suggestions to improve the data collection. Examples included increasing the frequency of surveys during a day, carrying out the survey on other days/weekends, using more candidates to minimize errors at each site, surveying the smaller roads too. Impractical suggestions included asking drivers where they were going and other questionnaire-style ideas.
- (ii) Candidates scored quite well here. The popular suggestions included types of vehicles, pollution – both noise and air- and number of people in cars. Less acceptable ideas included questionnaires, the colour of vehicles and the age/gender of the people driving.

Question 8

- (a) In stating the factors the candidate needed to give some idea of why they would be considered. Simple ideas such as width of river, depth of river, distance between sites did not indicate why these are important. Aspects of danger, safety, and accessibility were expected answers along with issues of obstruction, human influence and equal distances between the sites. Just listing where a village or road is was not enough to gain credit here.
- (b) (i) This was well done though a number of candidates just listed equipment without explaining how it would be used in the measuring of velocity. Most responses included good practical suggestions with some references to the calculations shown on Fig. 5 as required.
- (ii) Very few candidates did not gain all three marks for the calculation. A small number did not do the first division correctly which affected the following answers; some did not include the unit metres/second in the final answer which was a requirement for credit.
- (iii) This was well plotted by almost all candidates. It is good practice to number the sites 5 and 6 on the graph which some did not do but were not penalised on this occasion. Almost all drew acceptable lines which was a requirement in the mark scheme.
- (iv) This was well done. Most candidates took the overall trend and agreed with the hypotheses with many quoting the speeds at sites 1 and 6 as supporting evidence. Quite a few spotted the anomaly of Site 3 whether they agreed with the hypothesis or, on this basis, decided to disagree.
- (c) (i) This was not done well. Candidates seem to understand a sampling technique as a practical way of getting more bedload and suggested various kinds of nets and other apparatus to do this. A few mentioned random or systematic techniques for one mark but failed to give any detail as to how this technique would work. A few just referred to scooping out by hand anywhere some more bedload was found. Systematic and random sampling techniques are probably areas that come up every exam session and need to be better understood.
- (ii) Given the Insert provided the equipment to measure the long axis and the roundness of pebbles, it was surprising how many candidates invented their own ways of doing this e.g. putting a string around the pebble or feeling it with their hands for roundness. Those that suggested using the ruler to measure the calliper gap and comparing the pebble to the roundness chart gained appropriate credit.
- (iii) Most candidates realised that the bedload decreased in size and that became rounder/smoother with distance from the source. A few just stated that the hypothesis was correct and that the shape and size did change but did not identify the changes.
- (iv) Examiners were looking for references to increased velocity and processes of erosion such as attrition and hydraulic action that would break pebbles down and smooth them. Candidates tried just to list all types of erosion and did not refer to increasing velocity as a factor. Few could describe attrition in geographical terms e.g. banging into other rocks and breaking up
- (d) Improvements to the data collection methods were well done. Ideas such as increasing the number of sites, having more along the whole river, increasing the number of samples of bedload, more candidates to minimize errors were all acceptable. Vague suggestions such as *use better equipment* could not gain credit.
- (e) Too many candidates misread this as the impact of a river on people and launched into answers relating to flood impacts and measuring various aspects of flooding. Pollution was a common answer in terms of water, litter, factory dumping however candidates spent too long describing the impact rather than how they would investigate it. Some candidates described water use for irrigation or suggested investigating dams but could not put forward a realistic way of investigating the influence. It should be noted that a dam or irrigation alone is not the impact – reducing velocity or volume is the impact and too many did not specify the impact but focused on the cause.