2010   Geography GA 3: Written examination

GENERAL COMMENTS

Overall, students had prepared thoroughly for the 2010 examination and showed a good understanding of Geography. Students were able to demonstrate their ability to handle a variety of data at a sophisticated level.

Areas of strength and weakness

Strengths
- Most students were able to complete the paper. The extra space at the end of the question and answer booklet was used well.
- Many students wrote extensively and gave correct and relevant information.
- Students were able to demonstrate what they knew and understood. Many students displayed an in-depth understanding of topics studied.
- Students who understood and followed the instructions on the examination were able to answer questions correctly.
- Most students showed a thorough knowledge of a wide range of case studies for the topics studied.
- Students generally made good use of examples and quantitative data to support their contentions.
- Students made good use of the spatial concepts.
- There were some excellent examples of map work with global phenomena portrayed accurately.
- Local fieldwork provided background for some excellent mapping.

Weaknesses
- A concerning number of students did not read some of the questions carefully and therefore did not meet the question requirements.
- Many students did not notice that some questions were linked and that the focus of the question had changed in particular question parts.
- Many students did not focus on the key words in the questions; for example, key terms or geographic concepts. Despite writing very long responses and producing excellent data, many students could not be awarded full marks if they did not follow the instructions given on the examination.
- Students need to practise responding to questions directly as there was some evidence of students writing prepared answers that did not fit the questions asked. Students must be analytical and able to apply the appropriate material. Assessors look to see to what extent students have the capacity to synthesise and manipulate knowledge of their local regional resource to answer the question asked.
- The depth of detail when using case studies was good; however, more preparation is required as many students wrote superficial responses and used inappropriate examples and case studies. Students need to know the names and details of specific groups, places and events. The information given by many students was inaccurate.
- Knowledge of geographical concepts, such as knowledge of spatial interaction, was limited. It was of concern that many students confused the concepts of spatial interaction and spatial association, and spatial interaction and movement. Many students had difficulty describing distribution patterns and the nature of spatial change over time.
- Students needed to apply their knowledge of a wide range of case studies to the specific questions. Sometimes the links between their points were not developed sufficiently.
- Only a small proportion of students were able to correctly locate all required place locations within the Murray-Darling Basin. There were too many students who believed the Murray mouth was located in Queensland. Few students were able to correctly locate the major region of hydroelectricity production.
- It was evident that many students do not understand key terms. For example, when asked to describe a distribution pattern, students gave reasons instead. Some students seemed uncertain of the directive term 'discuss'. This term can encompass 'outline', 'analyse' and 'evaluate'.
- The analysis of population data was disappointing. Many students could not read an age–sex pyramid correctly.
- While most students included BOLTSS on their maps, overall map work was quite poor. Students need to ensure that their mapping is reasonably accurate. It is understandable that students devote a limited amount of time to their maps, but there were some concerning inaccuracies in the mapped information, particularly with specific locations. Accuracy was a major problem for many students drawing a global map of a global phenomenon. Titles often did not reflect what was drawn. Too many students confused continents, countries and regions.

- Students need to apply the correct geographic terminology. Instead of writing 'north' and 'south', some students referred to the 'top half' and the 'bottom half' of a country or continent. Some students used inappropriate terms to describe the global distribution of population, including 'below the equator' and 'above the Arctic Circle'.
- At times, students' handwriting was illegible. While handwriting is not directly assessed, answers that cannot be deciphered cannot be awarded marks.
- Considering strategies to address conflict and problems is part of the key knowledge in the study design. In general, students had prepared their case studies well. Students should be able to provide detailed information on such strategies: their goal(s) (including quantitative goals), the details of how they were implemented, their time frames (years of implementation), the government/agency/organisation responsible for their implementation, the difficulties encountered in their implementation and any unintended repercussions, some measure of their success in meeting their goals, and the time frame of their benefits (immediate benefits; long-/medium-/short-term benefits). The name of a policy or the document in which it has been set out is generally not sufficient.

SPECIFIC INFORMATION

For each question, an outline answer (or answers) is provided. In some cases the answer given is not the only answer that could have been awarded marks.

Note: Student responses reproduced herein have not been corrected for grammar, spelling or factual information.

Question 1a.

Marks	0	1	2	3	4	Average
%	3	24	36	28	9	**2.2**

Overall, this question was completed poorly. The majority of responses identified the mouth of the Murray-Darling River system correctly. A small minority located the region of major hydroelectricity correctly. Many selected the Lake Hume/Hume Dam which produces a small amount of hydroelectricity, but this is a location and not a major hydroelectricity-producing region. Very few students were confident in identifying a RAMSAR wetland or an intensive irrigation area for citrus growing.

Question 1bi–v.

Marks	0	1	2	3	4	5	6	7	8	9	Average
%	2	3	5	9	11	14	15	17	15	10	**5.7**

Question 1bi.
The year with the largest area under irrigation for cropping was 2004–2005.

Many answers seemed to be answering the question as though it was asking 'which year had the greatest level of water allocation?'.

Question 1bii.
Most students correctly identified that the year with the smallest area under irrigation for cropping was 2007–2008.

Question 1biii.
The annual amount of water available to irrigators, as determined by the relevant water authority

The majority of students were able to explain the term 'water allocation' correctly. The less successful students used vague or inaccurate terminology when referring to regions or areas.

The following is an example of a more successful response.

Water allocation is how much water is issued or allowed to be used by a land owner to irrigate their crops.
A water allocation is a right bought by an irrigator in which to draw a certain amount of water from the Murray Darling Basin over a year.

Question 1biv.
Most students were able to identify a strong relationship between water allocation and an area cropped for irrigation. The more successful students clearly identified the relationship by quoting particular years, how much water was allocated and quantifying the area of irrigated crops accurately; they used clear examples from the data to support their

response. Students who described the general pattern, supported by examples from the data, and identified the exceptions scored well.

Most students understood the term 'extent'. They were able to identify that there was a relationship between water allocation and an area of irrigation cropping, and could discuss the extent of this relationship. A large number of students, however, described this incorrectly as a spatial association.

The less successful students were unable to identify any pattern, did not quantify the data or were incorrect about the size of the area under irrigation cropping. They were unable to correctly add the number of hectares that were under irrigation. Few students used quantitative data on land area devoted to irrigation (in hectares) to support a contention made. Some used the type of land use rather than a quantitative assessment of land area under irrigation for each of the years mentioned. Many students identified the relationship between the amount of water allocation with rainfall rather than land area under irrigation.

The following are examples of successful responses.

The relationship between the percentage of water allocation received and the area of irrigated crops is strong. The higher the percentage of water allocation received, the greater the area of irrigated crops. For example, in the 2004-2005, the farm received 43% of water allocation and produced irrigated crops in 10 out of 17 paddocks on the farm. However in the year 2006-2007 received only 18% of water allocation and used 4 out of 17 paddocks for irrigated crops, all of which being rice. Exceptions to this pattern occurred in 2005-2006, when they received their highest percentage of water allocation 57%, however only irrigated 8 out of 17 paddocks.

As a rule, in seasons with greater water allocation, more land is irrigated. For example, in 2005-2006, 113.3 ha were irrigated with 57% water allocation. In seasons with less water entitlement, less land was irrigated. For example, in 2007-2008, 27.6ha was irrigated and the farm received only 21% water allocation. However, in some seasons the pattern does not apply. For example, in 2006-2007, 50.9ha was irrigated and the farm received a water allocation of only 18%.

Question 1bv.
This question proved to be challenging for some students. Many students appeared to expect an obvious strong or weak relationship between the two factors. The more successful students were able to explain that there was a link or connection between rainfall and irrigation cropping. Often the data for this question was poorly chosen and did not assist the student in the construction of their answer. A large number of students did not read the question carefully enough and looked at links between rainfall and water allocation, or used the amount of water allocation data in their answer instead of discussing the relationship between rainfall and area of irrigation cropping.

In many cases, students looked at the water allocation and rainfall relationship by providing statistics, but did not state what the relationship was. Many used spatial association and spatial interaction, but this was not relevant. Some students tried to explain the reasons why low rainfall leads to low irrigation and the growing of non-irrigated crops, but generally did not quantify their reasons. The most successful students began their response with a general statement outlining the extent of the relationship.

The following are examples of successful responses.

The amount of rainfall appears to have had minimal effect on the area of irrigated crops. In 2004-2005 they appeared to receive average or below average rainfall at 268mm, however, this was the period in which the largest area of irrigated crops was produced. In 2006-2007, they received their lowest rainfall since 1957 at 189.8mm and irrigated only 4 out of 17 paddocks. Then in 2007-2008 they received their highest annual rainfall since 1957 at 450.8mm and only irrigated 3 out of 17 paddocks.

The amount of rainfall also has an impact on the amount of land that was irrigated but the impact is less strong. The year with the lowest amount of rainfall – 189.8mm (2006) also had the smallest percentage of irrigated land (27.6ha). An exception is 2007 which received the highest amount of rain (450.8mm) but had only 73.1ha of irrigated land.

Question 1ci–ii.

Marks	0	1	2	3	4	5	6	7	Average
%	8	10	13	15	15	14	14	10	**3.7**

Question 1ci.

Most students handled this question well, clearly outlining the conflict at a specific location, nominating the stakeholders and then elaborating on their response so that the nature of the conflict was clear. The majority of the conflicts discussed were within the Murray-Darling Basin. It is of concern that students' general understanding about why there are conflicts surrounding water in the Murray-Darling Basin was weak.

Students were generally able to identify the people or organisations involved in the conflict. Some students named a specific group or organisation. Most stated 'irrigation farmers or environmentalists'. When discussing the stakeholders, students frequently referred to the Brumby Government, the Farmers' Federation, irrigators, farmers and environmentalists. Some students included RAMSAR and the Wellington Group. Most students showed an understanding of the distribution of water within the Murray-Darling Basin and could identify where the actions of one group upstream affected the actions of another group downstream. The more successful students were able to identify specific groups, name specific locations and include sufficient detail that showed thorough preparation and a genuine interest in the topic.

A large proportion of students outlined the conflict between farmers in the Goulburn Valley and the government/people of Melbourne for building the North-South Pipeline. This was difficult to do well, as much of the focus of the answers was on the needs and wants of Melbourne, which is outside of the Murray-Darling Basin.

Some of the more successful responses were about environmental flows competing with the demand of agriculturalists; for example, the Macquarie Marshes (RAMSAR site) – the need for environment flows versus cotton farmers upstream, and the Barmah-Millewa Forests and environment flows versus upstream irrigators.

The most common error was writing in general terms about environmentalists and farmers anywhere in the Murray-Darling Basin. Students who used the North-South Pipeline sometimes confined their discussion to Melbourne's water needs and ignored the arguments of the people around Yea. Students who used Melbourne and the North-South Pipeline as an example of a conflict could not achieve full marks as the conflict did not refer to a scenario within the Basin. The most noticeable weakness was a lack of quantification.

Some students were unclear as to what constituted a conflict within the Basin. It appeared that some answers had been rote-learned, and most answers, in general, lacked depth.

The following is an example of a successful response.

> *There is a conflict over the use of water as a resource within the Barmah Millewa Wetlands Region which has been going on since 2000. The BMW straddles the Murray River on the border of central, north Victoria and NSW near Echuca. The conflict is between supporters of the Living Murray Initiative such as Landcare Australia and the Yorta Yorta Aboriginal tribe who believe water should be allocated to environmental flows in which to flood the region and improve environmental sustainability. They believe the region holds significant environmental significance being the largest River Red Gum forest in the world as well as breeding grounds for 22000 migratory birds protected under RAMSAR treat such as the Ibis and Egret and breeding ground for native fish such as Golden Perch and Silver perch. The Yorta Yorta also believe that a loss of this region will represent a significance loss of culture. The other stakeholder is irrigators such as the Deniliquin Rice Farmers who believe water should be used as an economic resource. Rice contributed $350 million to the Australian economy in 2001 and use 20% of irrigated water. This conflict intensified because of the announcement by the Murray-Darling BasinA that water allocations for irrigators will be cut by 37%.*

Question 1cii.

Some students who used the North-South Pipeline in Question 1ci. were able to clearly describe one strategy of improved technology relating to saving water in the Goulburn Valley and the reallocation of the saved water. This made for a solid description of the strategy and of a timeline or quantification of the water involved. The same could be said of those students who outlined the Cap as a strategy to manage conflict. The more able students realised that it was essential to outline how a strategy would hope to reconcile the conflict and were able to articulate how the groups involved would benefit or the degree of success the strategy would allow them. Few students knew the date of implementation or the amount of water involved in their selected strategy. Environmental flows and buy-backs were policies that were common and well handled.

The most common issue with responses to this question was that students did not address both sides of the conflict when discussing the strategy. Focus seemed to be on solving the environmental problem and not on discussing how the farmers felt about it and whether the farmers were satisfied with the outcome or strategy.

The following is an example of a successful response.

The Living Murray Initiative was established in 2003 and aimed to improve the environmental sustainability of the six icon sites along the Murray, the Barmah Millewa forest being one of them. The initative guarantees environmental flows to flood the region, the last being in 2007 with a 500GL water release. The water release strategy is funded by a $500 million investment by the Victorian and NSW government, in conjunction with the Federal Govt. This strategy significantly improves environmental sustainability with over 55% of the region flooded. It also has the same fish stocks as a 10 year breeding program. This helps to manage the conflict as it ensures environmental sustainability for the next 5 years and works by improving irrigation techniques and buying water from willing sellers, therefore not stealing or reducing bought water allocations rights from farmers.

Question 2

Most students could identify a local resource and sketch its main features. The most successful responses were from students who had a thorough knowledge of their study area and were able to adapt this knowledge to the questions asked.

The less successful responses did not link 2d. and 2e. to 2c. This suggested that these students did not carefully plan their response to this question.

The majority of the local resource regions were sketched very well, with good use of BOLTSS. Students should note that sketches are generally not drawn to scale and yet most students added a scale. Students should be commended for the skill with which the maps were drawn; however, as the maps were not assessed, students need to be reminded not to spend too much time on producing detailed, colourful work. The more successful students produced sketch maps that were clear and concise, used symbols, keys and colour appropriately, and contained all the relevant information needed to address Questions 2b. and 2d. The less successful students either produced extremely brief or unclear sketch maps, or sketch maps that were not annotated. At times, students produced a sketch map of the resource's location in its region rather than a sketch map of the main features of the local resource as the question required.

The term 'annotation' was understood poorly by many students. Students should be familiar with annotated maps and diagrams.

It was concerning that few students used data to support their comments. It is recommended that students include some statistics to quantify and support their responses.

The more successful responses were from students who had a thorough knowledge of their study area and who were able to adapt this knowledge to the question asked. Some students seemed to have a prepared response that did not necessarily suit this particular series of questions.

Question 2a.

Marks	0	1	2	Average
%	6	32	62	1.6

Location was well described. Many students provided details of relative location in terms of distance (in time travelled or in kilometres) and direction from nearby towns and/or Melbourne's CBD. Some students also provided absolute location details such as Melways references or latitude and longitude details. However, very few students addressed the latter part of the question concerning 'within its regional context'. This entailed giving details of similar resources to the local resource studied within the region and/or placing the local resource in its regional context by reference to the local resource's role and importance within its region – for example, the Booroondara Council area or the City of Melbourne – or comparing their resource to similar resources within the region.

The following are examples of successful responses.

Tarra-Bulga National Park is located approximately 220km south-east of Melbourne in Victoria. It is located 36km south from Traralgon and 25km North of Yarram. It is in the South-Gippsland region in the Strezlecki Ranges.

Beacon Cove is located 4.1km South West from Melbourne's CBD and just a 10 minute tram ride or 20 minutes walk from the CBD. Similar resources located within the region of inner Melbourne include Docklands(located a 5 minutes tram ride from the CBD in a WSW direction) and Southbank which is located across the Yarra River from Flinders St station in Melbourne's CBD.

Question 2b.

Marks	0	1	2	Average
%	11	32	57	1.5

The more successful students could clearly identify an example of movement on their map. Most used arrows as suggested but these were not always annotated. The nature of the movement could have indicated any of the following: where movement was from and to, what was moving, the amount of movement, the frequency or timing of movement and the means of movement. Annotations should have included text written on the sketch map and students should understand what is entailed in annotation of geographic media. Such annotations might appear directly on the map itself or by the use of symbols on the map that are then explained in a key or legend.

While most students provided arrows showing the route and direction of movement on their sketch maps, students very often did not provide a sufficiently detailed annotation. The addition of an arrow and being listed as 'movement' in the legend is not an adequate replacement for a concise annotation printed clearly in the margin and signposted with an arrow to the relevant section of the sketch map, outlining what was moving and the area in which the movement was occurring. Importantly, the question required students to discuss movement within their study area.

Many phenomena were covered in this question, including the movement of people, water, traffic, skiers, boats, trail bikes, skaters, sediment, dunes, weeds and cattle. Many students were able to quantify the degree of movement.

The following is an example of a successful response. The annotation was placed on the map next to arrows indicating movement of people in both directions between the clearly marked car park, dunes and the bayside beach.

> *Visitors (to the Woolamai Coastal Dunes) move back and forward between the major car park and the bayside beach along tracks especially made through the dunes. Such use is most intense at weekends in summer.*

Question 2c.

Marks	0	1	2	Average
%	10	23	67	**1.6**

This question was linked to the movement shown in Question 2b.; however, some students discussed a different type of movement to that already mentioned. The question required students to discuss the movement within their local resource, but some students discussed movement from outside the local resource.

The more successful students were able to identify the movement and clearly explain whether the movement was having a positive or negative impact on the selected local resource (people or environment). They were able to explain the movement and how it was having an impact on the local resource (positive or negative). The less successful students showed a lack of understanding of the terms 'positive impact' or 'negative impact' and simply wrote about the policy or what the local council thought about the issue.

Some students neglected to clarify the nature of the impact as required or discussed a number of impacts when discussion of only one was required. The more successful students discussed the movement identified in Question 2b., made it clear as to whether the impact was on people or on the environment and whether it was positive or negative, and then went on to give details of the nature of the movement to justify their classification. There was elaboration by providing further quantification, details, events and time.

Negative impacts included congestion leading to loss of amenity or wear and tear on a particular section of the environment. Positive impacts included the social interaction provided by the movement of people in the area, the health benefits of the physical activity, or the benefit for local traders of the visitation of people through their purchase of goods and services.

The most common error was discussing erosion, compaction, congestion or litter without discussing whether the impact was positive or negative or whether it affected the people or the environment.

The following are examples of successful responses.

> *After rainfall, storm-water moves from the Willow Grove residences and the street, just inside the boundaries of the local resource, down into the artificial wetlands via storm-water pipes. The water is then naturally cleaned by the wetlands before flowing again into the lower billabong sub region. The impact of this water movement is positive on the environment because such movement provides the wetland ecosystem and the billabong ecosystem with vital water. With no movement of water these ecosystems would not survive long.*

> *The movement of cars along the road to stringybark picnic area has resulted in a negative impact on the environment. Roadkill of snakes and other small mammals such as the endangered southern brown bandicoot has increased. This impacts the biodiversity of the region and functioning of the ecosystem in the conservation zone.*

Question 2d.

Marks	0	1	Average
%	37	63	**0.7**

This question was linked to both Questions 2b. and 2c. The management policy annotated on the sketch map had to address the impact identified in Question 2c.

Strong students included a clearly mapped area and identified or described how management was related to the impact mentioned in Question 2c. These students had a highlighted area on their map by using symbols and colours, and had a clear annotation written next to the area mapped, which stated the nature of the policy in place at this area. The more successful students were able to shade and attach text to show the location of the area affected by the policy to manage the issue in 2c. These students were able to show understanding of management of the effects of the impact and also showed knowledge of policies in place to address the impact they outlined previously.

The less successful students struggled to clearly highlight an area affected by the policy or their policy-affected area may not have been relevant to the impact they mentioned in Question 2c. Many students simply shaded a location on their sketch map without annotations or explanatory text. The more successful students clearly identified the shaded location on their sketch maps as their response to Question 2d. and placed text on the map or in a key identifying the nature of the management policy, which also clearly addressed the impact discussed in Question 2c.

Many students merely listed the policy as 'the policy to manage the impact' rather than providing a concise annotation that outlined what was implemented to address the impact. Students are reminded that a policy is a management aim; for example, to maintain a region's visual appeal and amenity, to reduce the impact of high levels of traffic, to ensure visitor safety, to reduce the likelihood of injury, to reduce parking problems and traffic congestion and to reduce noise in neighbouring streets. The annotation should have stated this as well as the strategy used in an attempt to achieve this aim. While this aim may be set out in a document used by managers of the resource, the naming of the document was not sufficient (nor necessarily a requirement) in such a question.

The less successful students failed to link the location and policy back to the affected area on the sketch map and showed only a limited or no understanding of impact and effects on their selected local resource. A number of students failed to indicate the area affected by the impact or did not explain their notations. Again, students' answers were affected by a lack of understanding of what annotation requires.

The following is an example of a good annotation on the sketch map. The location of the fences and signs were clearly located on the sketch map as the student's response to Question 2d.

Policy – conservation of native vegetation. Strategy – building of fences alongside access tracks to prevent users/walkers damaging native vegetation + 'keep off – re-vegetation' signs.

Question 2e.

Marks	0	1	2	3	Average
%	16	25	39	20	**1.6**

Overall, this question was not done well and it was evident that many students did not read the question carefully. Question 2e. required students to evaluate the practicality of their policy mapped in Question 2d; however, many did not address the future aspect of this question and described the current management rather than future practicality.

This question was linked to Question 2d. The same management policy as was annotated on the local resource sketch map for Question 2d. had to be evaluated in Question 2e. Some students chose to evaluate a different management policy. Some students described their chosen management policy in considerable detail, but were unable to gain marks because the question required an evaluation and not a description.

Some students wrote about the sustainability or effectiveness of their policy rather than how practical their policy would be to implement in the future. Practicality should be interpreted as how achievable the policy is – how easy it will be to implement and possible obstacles to its implementation. Factors such as very high cost, strong opposition to its implementation and a general level of difficulty of administering a response are intrinsic to the notion of practicality. Management strategies that could achieve their aim but are unrealistic or impossible to implement are not practical. Some students wrote a detailed and well-prepared response that did not address the problem or attribute identified in 2c.

Successful students made a clear judgment on how practical their policy was or could be. They could also explain the practicality of their policy and refer to and use data they collected in the field to enhance their answer. These students

understood that there were three distinct parts to this question: to evaluate for the future, practicality for the future, and data. Many students made a point of saying whether the strategy was successful, partially successful or unsuccessful, but did not put this into a future context as was required by the question. Some students repeated the question by saying that the strategy was practical and successful, but failed to elaborate on how this was so in their case. Only the more successful students included data that was collected in the field. The less successful students attempted to evaluate a strategy that had been put in place at the resource but did not link it directly to the movement and impact they had outlined in Questions 2c. and 2d.

Many students did not include data they had collected in the field to support their assessment of the response's practicality. As students are required to collect significant data through fieldwork in their study area, students should have a wealth of information about their resource at their disposal. This could include visitor number counts, their own observations on the use of the resource, responses collected from surveying resource users or quantitative data collected from conversations with managers of the resource.

The following is an example of a successful response.

Como House's simple policy of controlling visitor movement by the use of the strategy of fencing has been so far, and will continue to be in the future, very practical. The fencing is relatively cheap to install and maintain and stops visitors from moving onto those areas of the estate where they could do damage. The fences do their job cheaply and effectively and hence are, and will continue to be in the future, practical. Surveys conducted showed that over 70% of visitors were happy to adhere to the fencing restrictions further demonstrating the fences' practicality. Interviews with management of Como House also indicated that since the introduction of the fences, damage to the garden plants had lessened, again indicating the policy's practicality. They saw no reason why this pattern would not continue in the future.

Question 3a.

Marks	0	1	2	3	4	5	6	Average
%	4	12	17	24	20	14	9	**3.3**

The more successful answers began or finished with a statement of agreement, partial agreement or, very occasionally, a statement of disagreement. These answers included a discussion of the distribution of higher density and lower density areas of population, using the density figures given on the world map (Figure 3a.). The future distribution was best discussed in the light of the figures given in Figure 3b. Quantification to support these discussions was essential.

The more successful responses accurately described the present population distribution and displayed an excellent level of locational knowledge by being able to mention the names of countries correctly. The more successful responses quantified the different levels of population density and gave examples of regions with high and low population densities, concluding by using the data from Figure 2b. to comment that the patterns are likely remain the same; however, Africa will be the continent to demonstrate the most change.

The more successful responses used the terminology from both the map and graph: 'number of persons per square kilometre' and 'percentage of world population'.

The less successful answers were brief and lacked detail, and often failed to refer to any of the data provided. Many students did not refer to the data in Figure 3b, which was crucial to a discussion of future populations. Many students made no reference to the map and many descriptions of the distribution were not quantified.

It was clear that students who did not respond well did not understand the instructional term 'discuss' and gave explanations instead. Many students gave detailed answers discussing the reasons for the distribution of population, not the pattern of distribution. Many students wrote an essay on factors that determine the distribution of population, often in relation to specific country case studies. Students are reminded to read the questions carefully. The number of pre-prepared responses was of concern.

Some students had difficulty understanding the meaning of the variable being mapped in Figure 2a and graphed in Figure 2b. Figure 2a showed density of population in particular regions; however, this does not necessarily mean the same as a region having a large population. Figure 2b showed the percentage of the world's population living in particular regions at given dates; it did not show that world population will decline in most regions. The graph indicated that there would be a reduction in the percentage of the world's population living in particular regions.

Too many students failed to specify the exact regions within countries that sustain high levels of population, instead just mentioning a very general region such as 'some parts of China' or 'China', when clearly the whole country did not have

high levels of population density. Students who had a strong geographic knowledge of the names of regions of the world were advantaged in this question.

Most often, students referred to Asia or the Australia/Pacific and stated that, because these figures did not change, the pattern did not change. Students often ignored the statistics for Africa and Europe, even when they referred to the information for Asia. Some students used only part of the data; ignoring Figure 2b made it difficult for students to comment on the future population distribution.

The following are examples of successful responses.

Figure 2a generally shows that the Asian and European regions have the densest population. In Asia, countries such as Japan, China and India have the largest population with the majority of land with 50 persons per km^2 and over. Europe shows countries such as Germany, Italy, Netherlands and UK to have a population of 50 persons per km^2 and more. However in regions such as the Americas, Africa and Oceania the general population is 1-10 people per km^2, with major countries such as the USA, Brazil and South Africa having 50-100 persons per km^2.

Map 2a shows that population is unevenly distributed with the largest population in the Northern Hemisphere. Figure 2b shows that this is likely to remain so in the future as percentage of population has always been the highest in Asia (1900 – 57.4%, 2000 (60.5%) and predicted to be 57.3% in 2050. Europe in 1900 was 24.7%, 2000 11.9% and 2050 predicted to be 7.2%. This indicates that Europe's population is declining while Africa's population is increasing – 2000 13.4% and 2050, 21.7%., whereas, Australia and the Pacific and the Americas are under 6% of the world's population from 1900 – 2050. This shows that population is uneven today's was in 1900, 2000 and is predicted to still be in 2050.

Question 3bi–ii.

Marks	0	1	2	Average
%	40	21	39	1

This question required students to identify and quantify a difference between two population pyramids for less developed countries and two population pyramids for more developed countries. On the whole, this question was answered poorly and many students had difficulty reading, interpreting and quantifying population pyramids. The more successful students selected a simple age cohort change and quantified it accurately, demonstrating an understanding of how to read a population pyramid. When writing about a change to the total population, these students used numbers for both males and females or they specified to which gender and age cohort the change referred.

Some students did not distinguish between 'identify' and 'quantify', and made general statements about the shape of the graph and the reasons for it. The less successful students ignored the instruction to quantify the change and simply stated the change. Many students chose age groupings that required a great deal of calculation, for example 0–24, 15–65; however, this made the quantification unnecessarily difficult and time-consuming. Some students gave lengthy and unnecessary explanations to account for the change they had identified.

More time needs to be given to the interpretation of age-sex structures. The most common error was not adding the males and females, and less commonly, describing the shape of the age-sex structure rather than interpreting what this represented. A few students failed to notice that the population numbers stated were in millions. Some students stated the number of people over a certain age (for example, 'over 65 years') and then only gave the data for the one age cohort older than the stated age. However, the term 'over 65' includes all age groups older than 65. Some students used the term 'working class' when they may have meant 'working population'. Many students mentioned the 'birth rate', when it would have been more accurate to use 'the number of children aged 0–4'.

The following is an example of a successful response.

The population is much younger in 2010 than it was in 1990. In 1990, the 0 – 4 age group was the only one that exceeded 400 million people. By 2010, all age cohorts below 24 had more than 500 million people in each.

Question 3ci–iii.

Marks	0	1	2	3	4	5	6	7	Average
%	1	3	7	13	18	18	20	21	4.8

This question was generally well answered. It was pleasing to see that most students had a sound knowledge of their case studies.

The more successful students commented on a specific change that had occurred to a population, as well as the time frame and scale of the change. They used specific data, such as dates, fertility rates or population numbers. They then

described one strategy undertaken in response to either a positive or negative impact of the population change. This involved discussing the nature of the impact, giving a description of the strategy and the use of data such as quantification. Examples of strategies included baby bonus schemes, prevention of sex-selective abortions, monitoring of pregnancies and HIV/AIDS prevention programs. These students evaluated the effectiveness of the strategy, involving a judgment on the strategy and reasons for the judgment, backed up with quantification. Many responses included reference to a time frame, the cost to implement the strategy and how many people were affected by the strategy.

The more successful students referred to a specific change within a population – for example gender imbalance in China – and quantified the change. Their subsequent answers related directly to this change. Students who took this approach scored more highly than those who looked more generally at China's population growth and the One Child Policy. Ageing population in Japan was another change that students used effectively.

The less successful students wrote in general terms without the use of specific data, particularly quantification. These students simply named the policy or strategy, and then gave inaccurate descriptions of the details. Many less successful students went beyond outlining the nature of the population change and started describing the effects of the management and, in some cases, the management in the outline of the problem. Students who used China as an example often referred to the change caused by the One Child Policy and then struggled to discuss a further policy.
A few students did not state whether the strategy had been a success or not, instead presenting a list of the effects of the strategy. Some students selected strategies that had little to do with the population change they had written about in part i. The less successful students struggled to quantify their statements. Too many students did not indicate the time period over which the change had occurred or did not indicate the scale of the change. Some students used dramatic language 'dropped dramatically', 'the TFR was out of control' and 'huge population' that added little detail.

Some students gave incorrect answers and stated that 'China's population was slowly decreasing'. Other students made incorrect statements such as the One Child Policy was introduced in 1960 and made references to World War II when describing changes to China's population.

Students who used Australia as their country generally performed well. Students were clear about the changes in Australia's population and the strategies undertaken, with most students referring to the baby bonus. These students were able to refer to dates and dollars accurately and evaluate this more effectively in part iii. However, some students did refer to a 'major' change in Australia's population as a baby boom since 2005. It is disappointing that many students did not seem to know basic facts about their country's population. Some students made incorrect statements such as stating that immigration was started to offset an ageing population, and the baby bonus was the first initiative for couples to have more children.

In evaluating strategies, students who used the acronym SAFFEIT simply elaborated on the criteria for developing the acronym without dealing with the question at hand. These students often did not score highly. Students are reminded that more is needed than simply listing positives and negatives.

The following is an example of a successful response.

> *i In the 1950's a large population was considered by the Chinese Government as an asset and people were encouraged to have children. But faced with large population growth (1.7% per year) the government feared its ability to provide resources for its people and any economic gains achieved, would be lost.*
>
> *ii The One Child Policy was introduced to lower population growth and to improve depleted living conditions. Couples were given incentives to have only one child, such as preferential education and housing and monthly payments. Disincentives for having more children included fines, demotion and lack of access to education.*
>
> *iii The strategy has decreased population growth to 0.7% annually (2000-2008 average) and living standards coincidentally have rapidly improved. Therefore it has been very effective in the short term. In the long term the population growth will continue to decrease but problems will be created as now only 20% of the population is under 15 (as opposed to 40% in 2000) leaving one child to look after 2 parents and 4 grandparents. Overall, this strategy is only partly effective because its long term impact on population structure is potentially damaging to society.*

Question 4ai–ii.

Marks	0	1	2	3	4	Average
%	8	10	18	30	34	**2.7**

4ai.

Students presented maps on a range of global phenomena. The most common topics selected were desertification, climate change, tourism and fishing. Other topics included human-forest interaction, volcanoes, terrorism, Olympic sites, acid rain and land mines.

The most successful maps were accurate and neat. They presented their information clearly and contained all mapping conventions (BOLTSS). However, in some cases the information mapped was vague in terms of what it represented. For example, maps of land mines that did not indicate if the countries shaded were those producing these munitions or if they were affected by their distribution. Too many maps were inaccurate and displayed poor data representation.

Students should ensure that the phenomenon mapped is one that is global. For example, some students produced maps showing the distribution of only one fish species; however, this was too simplistic and allowed little scope for linked responses. The more successful global fishing maps indicated fishing yields. The less successful maps claimed to show the impacts of climate change but consisted only of a series of labels; for example, 'drought' or 'more storms'. Global warming maps were often poorly drawn; students often mapped multiple characteristics on one map and these were not always accurate.

4aii.

Students who gained the mark were able to locate and name two locations accurately. Many students located and named only one location and others wrote Location 1 and Location 2 rather than writing the names of the places involved.

4b.

Marks	0	1	2	3	4	Average
%	14	11	29	18	28	**2.4**

The more successful students recognised that positive or negative impacts on people or environments were required for each location mapped. These students identified which aspect they were discussing and then discussed both locations clearly. They were able to use specific information such as quantification or examples in their answers and showed good understanding of case study material.

The less successful students' responses were vague, lacked examples and combined their discussion; for example, 'in both locations this has happened'. Sometimes students did not relate their comments to their mapped locations. Another common error was for students to describe the cause of the phenomena rather than the impact of it.

Students must ensure that they read the questions really carefully to ensure they directly address what is being asked.

The following are examples of successful responses.

Negative, people (desertification)
  China has experienced largely negative impacts with dust storms causing health problems and roads to be closed – a direct economic loss of $US 6.5 billion dollars per annum. 27.8% of land is desertified, 60% of people live in desertified areas...

  Chinguetti, Mauritania has been devastated by desertification. The town, was built 750 years ago and covered by sand, and the second town, built on the first's rooves is now covered with 3m of sand...traditionally nomads, people are being forced to become refugees in the nearby city of Nonakachott.

Fishing
  At Port Lincoln, the positive impact on people is that it has became the wealthiest town in Australia due to fishing, with 90% of Australia's tuna being distributed from Port Lincoln.

  Fishing had a negative impact on the environment in Newfoundland, Canada where Canadian Cod fish stocks decreased dramatically from 800,000 in the 1980's to almost zero in 1992.

  Off the coast of Indonesia it is the fishing ground for Southern Bluefin tuna. It is where intensive fishing by the Japanese has occurred (negative, environment). It has caused the SBT to be severely overfished with the World Wildlife Fund International scientists saying SBT stock is lower than 10%.

Question 4c.

Marks	0	1	2	3	4	5	6	7	Average
%	10	7	9	17	14	17	12	14	**3.9**

The majority of students were able to correctly identify a strategy to deal with the positive or negative impacts of their global phenomena. Strong students were able to evaluate the strategy at each location in a clear manner and used appropriate evidence to support their judgments. However, some students used acronyms without explaining the acronym's meaning.

The more successful students included the involvement of global agreements and organisations such as Greenpeace, RAMSAR, the Kyoto Protocol, UNICEF, EEZs and the Ottowa Treaty to evaluate the effectiveness of the strategies applied to the locations on their map. Some students who referred to global warming as their global phenomenon struggled if they tried to apply the 'reduction of CO_2 gases' or the 'Kyoto Protocol' to the locations mapped. Students need to understand the difference between a policy and a strategy and need to consider specific strategies undertaken in their mapped regions.

The less successful students often wrote on a hypothetical case for their second location. Other students wrote on two different strategies rather than on the same one, evaluating one location only or not using evidence.

The following is an example of a successful response.

Climate change example
  Strategy: dyke and barrier systems along coast to prevent rising sea levels entering low-lying coastal areas

  Evaluation at location one: In the Netherlands, dykes and barriers such as the Havingvleit Sluices built in 1971 on the Rhine delta have successfully controlled the flow of sea water for centuries. The barriers won't reduce the increased occurrence of storm activity along the coast but with regular maintenance will continue to effectively hold back tidal flooding and rising sea levels from entering low lying regions.

  Evaluation at location two: The dykes and barriers, similar to those in the Netherlands, would be effective at reducing sea level rise in Bangladesh however the Bangladesh government cannot afford to install and maintain the modern technology such as Havingvleit Sluices. The Bangladesh government plans to install 6,000 kilometres of coastal embankments which are technologically inferior walls which will not effectively prevent sea level rises from entering Bangladesh's low lying coastal regions. Unless systems such as those present in the Netherlands are installed, 17% of the country will be flooded.