

**C A R I B B E A N   E X A M I N A T I O N S   C O U N C I L**

**REPORT ON CANDIDATES' WORK IN THE  
CARIBBEAN SECONDARY EDUCATION CERTIFICATE® EXAMINATION**

**MAY/JUNE 2014**

**GEOGRAPHY  
GENERAL PROFICIENCY EXAMINATION**

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## GENERAL COMMENTS

This year 12,538 candidates sat the CSEC Geography examination, compared with 12,684 in 2013. Approximately four per cent of the candidates earned Grade 1, while 67 per cent earned acceptable grades, Grades I–III, similar to those in 2013.

Too many candidates did not respond appropriately to command words such as compare, explain and describe, and lost marks as a result. In describing items, more elaboration was needed. In comparing, the same elements or characteristics should have been examined for each area and similarities or differences clearly identified. There is a need for more practice in map-reading and in drawing sketch maps and diagrams. In map-reading, candidates demonstrated a lack of understanding of some basic concepts: scale, relief and drainage, calculating a gradient, and drawing a cross section. Diagrams and sketch maps were often scrappy but there were some that were neat, accurate and respected the conventions for drawing maps and diagrams. Most candidates gave a title to their diagrams and sketch maps – a welcome improvement.

As in previous years, many candidates, in Papers 031 (School-Based Assessment) and 032 (Alternative to School-Based Assessment), displayed an inability to conduct geographical field research and in Paper 031, in particular, to write independent reports. There were too many non-geographical studies and use of inappropriate techniques which when added to the issue of plagiarism indicate that the field projects are not being used to help the candidates gain mastery of topics in the syllabus. In Paper 032, it was evident that many candidates had no experience either in field research or in preparing and illustrating a report, and therefore were challenged by a paper testing such skills.

There are still many candidates earning Grade VI, a grade which indicates a very limited knowledge and understanding of the content and concepts tested. Further, many in this group submitted virtually blank scripts. This suggests that these candidates were not ready to write this examination. Teachers are encouraged to ensure that candidates who are entered for the examination are adequately prepared.

## DETAILED COMMENTS

### Paper 01

This paper consisted of sixty multiple-choice questions which assessed objectives across all sections of the syllabus. The performance was satisfactory. The mean was 63 per cent compared to 60 per cent in 2013. Candidates performed best on questions focusing on Human-Environment Systems — the water cycle, types of pollution, coral reef destruction, climate change and global warming. However, their performance on natural systems — landforms, formation of river valleys and volcanic features was below the required standard.

### Paper 02 – Structured Response

This paper comprised ten structured response questions, the first of which was compulsory and tested practical skills. The other nine questions tested Natural systems, Human systems, and Human-Environment Systems — three questions on each system. Candidates were required to answer one of the three questions based on each System.

### Section A: Map-reading (Compulsory)

#### Question 1

This compulsory question was not well done. About 1 per cent of the candidates earned over 20 marks, while the mean mark was 7 out of a possible 28. This performance is consistent with the pattern set over the years. Generally, only candidates who earned a Grade I or Grade II scored more than 14 marks.

Part (a) tested candidates' ability to measure the length of the road and was well done with over 75 per cent giving the correct response. However, candidates lost marks by their inability to give the correct unit. It is

clear that the concept of distance was not understood by some who gave their answers in centimetres and metres.

Part (b) required candidates to give the compass direction and over 90 per cent gave the correct answer. Most of the wrong responses were from candidates who gave the bearing instead of compass direction.

Part (c) required candidates to give the scale of a sketch map at half the original scale. Less than 10 per cent gave the correct response. It was evident that the majority of candidates were not familiar with the concept of reducing the scale. Candidates seemed not to understand that when the scale is reduced, any distance on the map represents a longer distance on the ground. Consequently, at half the scale, a kilometre would be shown in half the original distance on the line scale. Similarly, as a ratio, the scale is a fraction and thus the reduced scale can be calculated – half of 1/10 000 is 1/20 000 ( $1/2 \times 1/10\ 000$ ). Many candidates did not understand that one unit on the map would represent more units on the ground at the smaller scale because it is a smaller fraction of the real distance and gave 1:5 000 as the answer.

Part (d) (i) tested candidates' ability to read the key and name a man-made feature at a given grid reference. Only 35 per cent gave the correct response. The others misread the key and gave 'reservoir' instead of 'tank'.

Part (d) (ii) had an error. This question required candidates to name a feature which was not at the reference point given. Approximately 25 per cent of candidates omitted this part of the question. However, all candidates who attempted Question 1 were credited the one mark for this part because of the error.

Part (e) required candidates to calculate a gradient and approximately 15 per cent obtained full marks. Most candidates were able to state the correct formula but used incorrect values for distance and height although they were told to calculate the gradient between the coast and the 80-metre contour.

Part (f) was challenging to most candidates. It required them to complete a cross section and, although the contour heights were provided in the insert, only 10 per cent obtained the maximum five marks. Seventy per cent of the candidates were able to give an appropriate title, however, 50 per cent failed to accurately label the area of scrub vegetation. Some did not provide a key for the shading used and had no label while others indicated a point instead of showing the extent of the area. About 50 per cent did not complete the cross section using the contour points given but instead extended the given line as a straight line to the arrow for Haymann's factory on the perimeter.

Part (g) (i) required candidates to list four drainage features from the prescribed area on the map. Most candidates listed all the drainage patterns that they knew, ignoring map evidence. Others listed all the drainage features found in the key, for example, well, borehole, mangrove. It is evident that the candidates did not understand the concept of drainage features. Appropriate answers indicated the direction of flow, the quality of the drainage, the pattern of the streams, the number of streams, and the presence of surface and disappearing streams.

Part (g) (ii) required candidates to list four relief features in a prescribed area on the map. It seemed that the candidates did not understand the concept of relief and simply described unrelated features on the map, for example, cultivation, settlement, and roads. Less than 10 per cent gave correct responses. Candidates needed to recognize landforms showing steep slopes, escarpments, depressions, narrow gullies, terraces, and spurs.

In Part (h), candidates were required to explain the distribution of trees and cultivation. Seventy-five per cent of candidates were able to describe the location but were unable to give reasons for their distribution. It was evident that the relationships affecting distribution were not understood. Less than 10 per cent of the candidates scored the maximum 6 marks allotted to this section. Most candidates simply said where the trees and cultivation were present and where they were absent. However, they were expected to give the reasons why they were distributed in that way using evidence from the map. They were expected to notice areas of cultivation on flat or gently sloping land with access to roads for transport and to streams for water, and the trees on escarpments and in the narrow gullies which could not be cultivated because of their steepness.

## Recommendations

1. Map reading should be integrated as much as possible in lessons, even using atlas maps, to teach basic skills and associations.
2. The responses seemed to suggest that candidates were deficient in practical skills, for example, measuring direction, measuring distances, calculating gradient and drawing cross section. Students need to practise these skills on a regular basis. Research has shown that learning is enhanced through revision and practice. This applies to map-reading skills.

## Section B: Natural Systems

### Question 2

Question 2 was attempted by 62 per cent of the candidates and although a popular question, only 25 per cent produced satisfactory responses. The mean mark was 8 out of the possible 24. The question tested the candidate's ability to draw a labelled diagram depicting convergent plate boundaries, their knowledge of the processes of weathering and mass wasting, as well as, the processes leading to the formation of volcanoes and earthquakes (as these relate to the theory of plate tectonics).

Part (a) was not well done. It required candidates to draw a diagram depicting folds, a volcano and the subduction zone at a convergent plate boundary. A common error noted was that candidates placed the volcano on the oceanic plate with folds in the interior of the plates. Some candidates drew a series of individual diagrams instead of one diagram to depict the features. Candidates need to pay more attention to details in drawing labelled diagrams. Candidates were expected to draw diagrams with clearly identifiable boundary, and with folds, volcano and subduction zone clearly labelled.

Part (b) (i) tested candidates' knowledge of weathering and mass wasting. Many candidates were unable to define these terms correctly. Several did not indicate that in the weathering processes, no movement is involved. Often, the role of gravity in the process of mass wasting was not stated. Many candidates saw mass wasting as relating only to the movement of soil and not of weathered material.

Part (b) (ii) required candidates to describe what happens when either a landslide or soil creep occurs. This part of the question was answered best. Examples of expected responses include the following points:

*A landslide is a sudden and rapid movement of large masses of weathered material along a steep slope under the influence of gravity. It is accelerated by the presence of water. As it moves it collects or destroys materials in its path. Soil, rocks and vegetation accumulate at the base of the slope. The original position of the weathered material is indicated by a scar.*

*A soil creep is a slow, continuous, movement of soil down slopes under the influence of gravity. Terracettes, roughly parallel to the contours, form across the slope. Trees and utility poles are tilted and bent downwards. Fences and walls move and may break. Soil accumulates behind walls and at the base of the slope. It is accelerated by the presence of water.*

In Part (c), candidates were asked to explain how volcanoes and earthquakes occur using the theory of plate tectonics. Instead, many discussed the hazardous nature of earthquakes and volcanoes. Many of those candidates who attempted to explain the formation of volcanoes, failed to relate the process to plate tectonics.

A good answer identified volcanoes being created at divergent and convergent plate boundaries. The claim that, at convergent plate boundaries, melting of the denser oceanic plate at the subduction zones occurs with magma being forced to the surface through fissures was accepted on this occasion. Candidates need to know that RECENT research has changed that view. Volcanoes formed at convergent plate boundaries have explosive eruptions and because of the high silica content and viscosity of the magma, they form steep cones. Few candidates identified the volcanoes formed at 'hot spots' and the role of plate tectonics in their formation.

Most candidates were able to place the formation of earthquakes at transform margins but few addressed the other types of plate margins. Candidates noted that earthquakes occurred at plate margins where the movement of the plates "rubbed against" each other. Few were able to expand beyond this point. They should have said that when the plates get stuck at their margins, pressure builds up because the rest of the plate continues to move and the sudden release of the pressure creates the earthquake. Very few mentioned that the movement of magma also creates earthquakes.

### Question 3

This question tested candidates' knowledge and understanding of river processes, floodplain landforms and the formation of specific coastal features. Most candidates scored 10 or more of the maximum 24 marks. The mean mark was 9.

Part (a) was well done, but some candidates failed to earn any marks because they did not indicate which of the letters on the diagram matched their responses. Candidates needed to recognize that their answer formed a "key" to the diagram and that they should have provided adequate details. The bluffs, the landforms marking the boundary of the floodplain, were not well known.

Acceptable responses:

- (a) (i) *Section of the river represented by the diagram: Flood plain or plain stage or lower course.*
- (a) (ii) *Labelled features: A — levees, B — oxbow lake, C — meander, D — River cliffs or line of bluffs*

In Part (b) (i), the majority of candidates were able to name two features produced by river erosion.

Some acceptable responses:

*Valleys, rapids, waterfalls, gorges, oxbow lakes, river cliffs, meanders, plunge pools, pot holes, and interlocking spurs.*

In Part (b) (ii), candidates were able to identify and outline two of the processes by which rivers erode their channels (hydraulic action, abrasion and corrosion). However, some candidates did not recognise that the question focused on the river's channel and that as a result, attrition was an unacceptable response.

Part (c) focused on the formation of coastal features. There was a high percentage of good responses with candidates earning 9 or more of the 12 marks. The majority of candidates explained the formation of the features adequately; however, there were some generalised responses or careless answers which restricted the marks candidates could earn. In particular, some gave excellent responses explaining the formation of caves in limestone areas instead of formation **by wave action**, thus failing to earn marks for that answer.

Some acceptable responses:

*Wave erosion is dominant along coastlines where the water is fairly deep and onshore winds produce destructive waves.*

*Cave —A cave is an erosional feature. Wave action between high tide and low tide is more effective at a line of weakness in resistant rocks. It is eroded by hydraulic action or pressure, abrasion, and cavitation until an indentation is formed on the rock face. This is a notch. Prolonged erosion enlarges the notch to form a cave.*

*Beach — A beach is a depositional feature usually an accumulation of sand or shingle between high and low tide. It forms when constructive waves deposit materials on the coast. Most beaches form in bays where the water is shallow and waves break before reaching the shoreline. The forward movement of the waves or the swash carries material up the beach and the material is not removed because the backwash is weak. On a beach, the finer material is near the water's edge as they are carried down by the backwash, gravitational movement of the water.*

#### Question 4

This question tested the candidates' knowledge and understanding of weather systems in the Caribbean as well as characteristics of the vegetation found in either tropical rainforest or tropical grasslands. There was a low response (6 per cent) and the question was very poorly done. Many candidates did not attempt all parts of the question. The mean mark was 4.

Part (a) required candidates to shade and state the name of one area of Tropical Rainforest (Amazon, Zaire and Indonesia) and one of Tropical Grassland (Llanos, Campos, African, Northern Australian) using the world map provided. This was poorly done as the majority of candidates only had a vague idea of the geographic location. Hence, they were unable to shade the specific areas on the map to match the two regions. In a few cases, they knew the correct names but shaded the wrong areas and thus could not earn the marks.

In Part (b), candidates were asked to describe the weather associated with any two Caribbean weather systems. The concept of a weather system was generally misinterpreted and the majority of candidates wrote about the weather (for example, weather in Guyana) instead of the weather systems (hurricanes, cold fronts, easterly waves, ITCZ and anticyclones). Others focused on how the systems were formed rather than on the winds, rainfall, temperature, pressure and clouds associated with the systems (before, during and after, as appropriate where relevant).

Part (c) had the best responses. The candidates who understood the question were able to earn 7 or more of the 12 marks. Many did not gain full marks because they were unable to properly link the impact of the climate to the particular characteristic selected. Candidates were expected to name four characteristics and then explain how each has been influenced by the climate (for example, life form – trees or shrubs or grasses; seasonality – evergreen or deciduous or annual; heights; stratification – layers or even heights; variety of species; depth of roots).

Some candidates misunderstood the question and attempted to compare the two regions. It seemed that candidates were not adequately prepared for these topics.

### **Section C: Human Systems**

#### Question 5

This was a popular question, attempted by about 55 per cent of the candidates. The question tested the candidates' knowledge and understanding of the causes of urbanization and urban growth and there were satisfactory results. The mean mark was the highest in Sections A, B and C.

In Part (a), the responses were generally good. Approximately 75 per cent of the candidates were able to answer the questions which required them to interpret data in a table.

Correct responses:

- (a) (i) *Cuba*, (ii) *Trinidad and Tobago*, (iii) *St Kitts and Nevis or St. Vincent and the Grenadines*.
- (iv) *Cuba*.

Part (b) (i) was poorly done. Few candidates were able to identify two ways by which the population in cities can increase. While some candidates recognized the role of migration, most candidates failed to qualify it by stating rural to urban migration or even immigration. Others made reference of high birth rates without any mention of death rates. The answer required two of natural increase, net migration and reclassification of settlements.

Part (b) (ii) was fairly well done. Many candidates were able to list or identify correctly three measures to reduce urbanization. Weaker candidates merely stated what was lacking in rural areas and did not develop the points adequately. Some candidates showed a lack of understanding of the concepts/terms 'rural' and 'urban'. Other candidates failed to mention the measures necessary to develop rural areas, therefore reducing urbanization in the Caribbean. Too many candidates wrote about controlling urbanization and cited the development of new towns while the question asked about reducing urbanization. Building new towns would not be a strategy to reduce urbanization. Some of the answers seemed to be the reproduction of notes learnt by rote. The measures expected include:

- *Decentralization of developments where government encourages investors to locate their business outside of the urban areas housing schemes in rural areas.*
- *Land use zoning where in some countries, laws are enacted to protect farm or woodland areas from other land use.*
- *Improvement in agricultural practices and marketing of products which encourages rural people to remain since they can make a living from agriculture.*
- *Improvement in infrastructural development such as utilities, roads in rural areas which facilitate commuting between rural and urban areas. Assistance is provided to farmers, for example, fertilizers.*
- *Provision of adequate social services such as health, recreation, care, schools, in rural areas thus reducing need for residents to migrate to larger centres.*
- *Provision of land to farmers, for example, land lease of government owned land to farmers.*

Part (c) was fairly well done by most candidates. Candidates correctly identified four reasons for the movement of rural residents to cities. However, some candidates gave limited explanations and were therefore unable to earn full marks. Some of the better answers included appropriate examples. Some candidates separated factors - giving separate elements, for example, infrastructure (utilities) was separated into water, electricity and roads; social service was separated into education, health, transport, etc. Credit was only given for the category, with the type of infrastructure and types of social services as examples. Many candidates incorrectly re-stated the answers given in Part (b) (ii) for reducing urbanization.

### Question 6

This question tested candidates' knowledge and understanding of primary and tertiary economic activities in the Caribbean. Approximately 20 per cent of the candidates attempted this question. Only a small proportion of the candidates performed well. The average mark was 10.

In Part (a), candidates were required to interpret a table and this was successfully done by most candidates. However, many misread the key and answered Part (iv) incorrectly.

Correct responses:

- (i) Barbados (ii) Dominica (iii) 25 per cent, (iv) 61 or 62 per cent.

For Part (b) (i), although very few candidates adequately defined the term ‘tertiary activities’, most candidates were able to give appropriate examples. Tertiary activities are economic activities that provide personal and professional services. The focus is on serving people in any way. Tertiary activities also provide a link between customers, and primary and secondary activities through wholesaling, retailing, banking and transport.

In Part (b) (ii), candidates were asked to describe three benefits of the tourist industry to the Caribbean. While most candidates performed well on this section, many focused on the fact that tourists advertised the region but failed to state how this benefited the region. Candidates were expected to highlight the fact that tourism creates jobs, earns foreign exchange, contributes significantly to the government’s revenue, creates linkages with other sectors, develops infrastructure and promotes culture.

In Part (c) (i), candidates were asked explain two ways that mining, forestry or fishing contributed to economic development. Generally, the candidates who choose mining had better responses. However, it appears that candidates were not well prepared for this topic. Many of the candidates who chose fishing and forestry highlighted the social and environmental benefits. The better candidates were able to comment on the production of raw materials for other industries, earning of foreign exchange, job creation and economic diversification. More importantly, they were able to show how they contributed to economic development.

The responses to Part (c) (ii) were generally weak. Once again the candidates seemed unprepared for this question. They were unable to explain two challenges facing the garment industry or the food processing industry in the Caribbean. Some of the challenges facing the garment industry are the increasing cost of labour, which has resulted in MNC’s moving to cheaper locations, increased competition due to trade liberalisation, high cost of electricity and the small size of the factories. Similarly, some of the challenges facing the food processing industry include the dependence on imported raw materials, high cost of equipment, unreliable supply of fruits and vegetables, low quality products and competition from foreign producers.

### Question 7

This was a very low response question with only about four per cent of the candidates attempting it. While candidates performed satisfactorily in Parts (a) and (b), they experienced difficulty with Part (c).

Part (a) required the use of data in a table on sugar production. Parts (i) and (ii) were well done. However Part (iii), requiring the calculation of the percentage change, was poorly done and quite often even when candidates calculated the percentage change, they forgot to state whether the change was a negative or a positive one. Since candidates are allowed to use calculators, the challenge in performing the calculation may be in understanding the term ‘percentage change’.

Correct responses:

*(i) Cuba, (ii) 25 000 tonnes, (iii) Increase of 90 or 91 per cent.*

Part (b) (i) was well known and done. About 75 per cent of the candidates were able to adequately define the term ‘peasant farming’. Peasant farming involves the cultivation of crops and the rearing of animals primarily for subsistence and local markets using mainly family labour on small holdings.

In Part (b) (ii), candidates had no difficulty listing two ways that peasant farmers market their goods. In a few cases, candidates were uncertain about the meaning of the word ‘market’ as a verb and the phrase ‘market their produce’.

The ways in which peasant farmers market their produce include selling

- *to sugar factories*
- *to marketing boards*
- *directly to the hotels and supermarkets*
- *individuals by the roadside*
- *vendors in vans who visit their homes or farms to purchase their produce*
- *individuals at local markets.*

For Part (b) (iii), candidates were required to describe two characteristics of large scale arable farming in the Caribbean. Many candidates performed fairly well. However, several lost marks because they listed characteristics and gave no description. Thus, where candidates stated that the farms were very large, they were expected to add ‘over 200 hectares’ to earn an additional mark. Candidates must pay close attention to the command words in the question. Some of the common characteristics which candidates failed to develop were modern technology and the amount of machinery used.

Part (c) had some good responses but the majority of the candidates did not give suitable comparisons. Instead of using the headings given, the candidates discussed each area separately and did not compare the information for the two regions. Better answers came from the candidates who used tables to compare the two areas under the different headings and so remained focused on the topic they were comparing.

The part on mechanization was well done with candidates scoring the most marks on this part. Candidates were also able to identify challenges facing commercial arable farming in both areas, such as weather conditions and pests. Generally, these two headings (mechanization and challenges) were well known with several candidates producing exemplary answers. However, only a few gained marks on diversification. Generally, it seems that ‘diversification’ was not understood.

Acceptable responses:

- *In the Caribbean, diversification include the introduction of animal production into arable farms, as well as tree crops and non-traditional crops, for example, vegetable and fruits.*
- *In the Canadian Prairies, diversification include mixed farming with crop rotation and oil seed; as well as other crops such as oats, barley and sunflower. There is also dairying near urban areas.*

#### **Section D: Human – Environment System**

The responses in this section earned the highest mean marks. Most candidates had their best answer in this section.

#### **Question 8**

This was a low response question. It was attempted by 18 per cent of the candidates. The question tested the candidates' knowledge of the impacts of natural disasters on Caribbean territories and their understanding of measures needed to protect coral reefs and to reduce the emission of greenhouse gases.

The performance of most candidates was satisfactory.

Part (a) required a sketch map of any Caribbean territory and was not well done. This suggests that many candidates do not practise the skills of drawing sketch maps. Students should practise using geometrical shapes to provide a base for drawing a sketch map of any territory or even a continent and then develop the outline — aiming to be able to do so in about five seconds. Candidates are expected to provide a good recognizable shape with title and key/labels.

Part (b) was answered satisfactorily as candidates described the impact of a chosen disaster. However, some candidates ignored the term 'named Caribbean territory' in the question and were penalized.

Part (c) produced a wide range of marks. The better candidates read the question carefully and took note of the key words in the question, "how...any TWO measures can reduce". These candidates identified the measures and developed each in separate sections.

Part (c) (i) dealt with coral reef degradation and candidates were expected to explain how measures such as coastal management, public education, coastal land use zoning and laws could reduce degradation. Many candidates just gave a list of the causes and effects of the degradation of coral reefs.

Acceptable responses include the following points:

- *Coastal management focusing on controlling sedimentation and disposal of sewage and industrial effluent which would destroy the habitat of live corals.*
- *Public awareness campaigns targeting locals and visitors and reinforcing the importance of healthy reef ecosystems. This reduces trampling, destroying live corals and sedimentation of water.*
- *Laws enacted to reduce marine pollution and the breakage of corals, and restrict anchoring of boats in coral beds with well-publicized severe penalties which are strictly enforced.*
- *Creating marine reserves where the use of the area is regulated through monitoring by the environmental agencies. Also, coastal zoning with designated areas for different uses.*
- *Improved monitoring of the marine environment in order to reduce illegal activities such as sand mining, walking on coral reefs, and improper fishing techniques.*

Part (c) (ii) focused on measures to reduce the emission of greenhouse gases. Weaker candidates confused 'greenhouse gases' with 'greenhouses in farming' and dealt with the causes and effects of the emission of greenhouse gases. They did not adequately address the term 'measures to reduce the emission' in the question. Thus candidates were expected to write about alternative energy, using more efficient machinery, discouraging the use of private transport and older cars and saving energy. Planting trees was not an acceptable answer as this does not reduce the emission of greenhouse gases.

### Question 9

This was the most popular optional question in this examination. It had nearly as high a response as the compulsory question attempted by 80 per cent of the candidates. It had the best response with a mean mark of 14. The candidates were required to read and interpret data from a bar graph, give definitions of both air pollution and water pollution, and explain how tourism development contributes to the destruction of coral reefs in the Caribbean. It also required candidates to explain consequences of deforestation in the Caribbean and the possible consequences of global warming in the Caribbean. Its popularity may be linked to the fact that both of the other questions in Section D required candidates to draw a sketch map which seems to present a challenge to many.

Part (a) (i) to (iv) tested the candidates' interpretation of a bar graph showing the percentage of forest cover in the Caribbean. Most candidates scored full marks on these parts.

Correct responses:

*(i) Anguilla, Guyana, Suriname; (ii) Cuba, (iii) Aruba, Barbados, Haiti, Netherland Antilles; 15 or 16 per cent.*

The responses to Part (b) (i) were unsatisfactory. Most candidates had difficulty defining air pollution and water pollution. They could have an appropriate synonym such as contamination and include examples of pollutants. Many responses did not state that pollution can be caused by man's activities or by nature.

Some suitable definitions are as follows:

1. *Air pollution refers to the contamination of the air by pollutants such as carbon monoxide, dust and smoke.*
2. *Water pollution refers to the contamination of water bodies, for example, rivers/lakes by pollutants such as raw sewage, garbage, or runoff from farms.*

About fifty percent of the students scored more than 50 per cent of the marks allotted in this section.

In Part (b) (ii), candidates were tested on ways in which tourism development contributes to coral reef destruction. About eighty per cent of the candidates wrote appropriate answers for this section. A small percentage of candidates 'listed' instead of 'described' how tourism contributes to coral reef destruction.

Acceptable responses include:

- *Clearing of land for the construction of hotels and roads has resulted in soil erosion and sedimentation of sea water.*
- *Improper disposal of organic waste from hotels causes eutrophication/reduces oxygen and causes the death of corals.*
- *Collecting of specimens for souvenirs. When tourists visit reefs, they sometimes break off pieces of corals, craft vendor collect coral for making souvenirs.*
- *Berthing of boats — boats anchor on reefs to allow for scuba diving and viewing — the anchor breaks off coral reefs. Oil spills destroy corals.*
- *Unmonitored visits to coral reefs, walking on corals, diving and damaging reefs.*

In Part (c) (i), some candidates did not understand the concept of consequences and instead they wrote on the causes of deforestation. Those candidates who identified the consequences of deforestation failed to fully explain how the consequences occurred. About fifty percent of the responses scored full marks for this part.

Consequences of deforestation include:

- *Loss of habitat — Certain animals depend on specific varieties of plants for survival. When the ecosystem is destroyed, several species become endangered in the region, for example, parrots, snakes and zandoli (lizard) in Saint Lucia.*
- *Landslides — Tree roots which normally bind the soil are absent the unstable soil move downslope readily. The material may block roads, dam rivers causing flooding and destroy crops, animals and buildings.*
- *Water shortages — Deforestation has been linked to drought in the Caribbean. During dry spells, forests remain moist for long periods, allowing the slow release of water into rivers and streams. Without forest cover, less water is stored and rivers and water dry up much more quickly leading to water shortages.*
- *Global warming — Large forests act as carbon sinks absorbing carbon dioxide. Removing or cutting down the trees results in more CO<sub>2</sub> in the atmosphere. Since CO<sub>2</sub> is a greenhouse gas, more CO<sub>2</sub> in the atmosphere means increased global temperature.*

Part (c) (ii), focused on the possible consequences of global warming in the Caribbean. This part proved to be the most difficult for most of the candidates. Majority of the candidates wrote extensively on the causes of global warming instead of the possible consequences of global warming in the Caribbean.

Consequences of global warming include:

- *Rising sea levels — This will cause floods in low-lying areas. This will cover beaches, coastal vegetation and settlements resulting in costly coastal protection measures.*
- *Bleaching of corals — Higher temperatures mean that warming of the Caribbean sea will cause 'bleaching' and death of coral reefs which are very important to the fishing and tourism industries. Coral bleaching is affecting Belize's barrier reef. Algae and other marine animals lose their habitat and there is less food for large animals in the food chain. This also results in the migration of fish.*
- *Stronger hurricanes — As oceans get warmer, storms could become more violent and even more frequent. Stronger hurricanes are likely to cause greater damage to the people and economy of the region.*

### Question 10

This was the least popular question. Less than one per cent of the candidates attempted this question. It tested the candidates' ability to draw a sketch map, identify sources of greenhouse gases, state the causes of marine pollution and the measures to be taken to reduce it. The candidates were also asked to explain the measures to be taken to alleviate the effects of natural disasters in the Caribbean. At least 50 per cent of the candidates scored 12 of the 24 marks.

In Part (a), many candidates were not familiar with the maps of the Caribbean territories. About 15 per cent of the candidates did not attempt this part of the question. Approximately 30 per cent of the candidates misinterpreted the question and drew the map of the Caribbean and tried to locate Guyana and Suriname - the insert included Guyana and Suriname, and seemed to confuse the candidates; the title and North arrow were missing in many of the responses. Overall, the question was fairly done.

Part (b) was fairly well done by the candidates. However, Part (b) (i) asked for two sources of greenhouse gases and was misinterpreted as several candidates confused the gases with the sources of greenhouse gases. Of the three Parts, (b) (ii) was well done. Approximately 80 per cent of the candidates answered this part correctly giving two causes of marine pollution in the Caribbean. For Part (b) (iii), the candidates were able to identify the measures to reduce water pollution along the coast but were unable to develop the measures adequately.

The causes of marine pollution in the Caribbean include:

- (i)
  - *The burning of fossil fuel in factories/power plants*
  - *The burning of vegetation/garbage*
  - *The use of refrigerants*
  - *Exhaust from motor vehicles*
  - *The rearing of animals increases the methane content*
  - *Aerosols*
  - *Water vapour*
- (ii)
  - *Disposal of untreated sewage by residents in coastal areas*
  - *Dumping of chemical by industries in coastal areas*
  - *Waste from rivers that empty into the sea*
  - *Dumping of household waste into the sea*
  - *Rainwater washes fertilizers, herbicides and pesticides into the harbour via the rivers*
  - *Oil spills*

- (iii)
- *Building a plant to treat sewage will prevent raw sewage from entering the sea*
  - *Public awareness campaigns to encourage people to avoid dumping garbage in waterways*
  - *Prevent ships from dumping waste in harbour by providing facilities for disposal*
  - *Legislation to prevent industries from dumping chemical waste into water courses and coastal areas.*

Part (c) had the weakest responses as the candidates were able to identify the measures but had challenges explaining how they reduced or alleviated the effects of a natural disaster. It seemed that they did not understand the term ‘and / or’ in the question. Approximately 20 per cent of the candidates who attempted this question were able to answer this part – adequately explaining the need for building codes, evacuation drills and shelters.

### **Recommendations**

- Teachers should ensure that candidates familiarize themselves with the Caribbean territories and acquire the skills of drawing sketch maps of the Caribbean countries.
- Candidates need to pay attention to key terms and details.
- Candidates need to develop the skills of answering questions which require explanation. They should be able to elaborate on single statements provided and respond logically.
- Candidates should practise drawing relevant diagrams, especially of features in the Natural Systems.
- Candidates should know what type of response is required by terms such as: list, state, describe, outline, explain and account for.
- Simple map-reading skills need to be practised frequently in order to be mastered.
- Estimating distances of 10, 20, 100, and 400 metres, even as a game, to build a concept of distances would be helpful.
- Attention should be given to the objectives on climates, vegetation and soils since questions on these are always poorly done. Models of the interaction in the biomes would help candidates understand and remember the characteristics and the interactions.
- In studying the Caribbean weather systems, the general circulation of the atmosphere in the Caribbean area using the Hadley Cells will provide a framework for the occurrence, distribution and seasonality of the systems, and help candidates understand them.

### **Paper 031 – School-Based Assessment**

#### **GENERAL COMMENTS**

There is need for greater guidance to students in selecting topics for study and on all aspects of the project. While students may do a common project they must write individual reports even though they have the same data.

Plagiarism in reports is a problem which ought to be addressed by teachers. As stated in the syllabus, teachers should not grade reports containing plagiarized material or reports which are the product of joint authorship or copied, but should require such candidates to do over the report purged of the offending material.

## **Comments on the body of the Field Report**

### **Table of Contents**

Despite the simplicity of this task, too many candidates are losing this mark. Teachers must ensure that students consecutively number all pages of the report using the section headings that are outlined in the syllabus.

### **Aim of Study**

There were still too many broad aims that did not lend themselves to adequate data collection. The aim should include a delimited area of study that is manageable. The name of the territory should be included in the aim. The aim should be based on a topic or a specific objective defined in the syllabus. Teenage pregnancy, class sizes and road quality are NOT suitable topics for study. The aim must be geographical.

A good example of an aim was included in the 2013 report and restated: *To examine and account for the distribution of litter in the streets of Town/suburb (named) in country (named) on Saturday (date)*. A vague, non-geographical aim is 'To investigate biodiversity in (named territory)'. Candidates are encouraged to use verbs such as *assess, examine, evaluate, measure, analyse* and *discuss* in their aims or to pose a question to test an idea. This will help focus the work in the field. To ensure that the topic is geographical, apart from being on the CSEC syllabus, the spatial distribution of features or characteristics should be included in the aim.

### **Location of Study**

Increased emphasis should be placed on the inclusion of map conventions. The territorial map should clearly show the name and location of the study area. The site map is still an area of concern. It is not just an enlarged parish map. It should include details of the site and its immediate environs and it should be clearly labelled. If electronically generated maps are used they should be manipulated or altered by the student to make them relevant to the study.

### **Methodology**

There was an over-reliance on questionnaires. In many cases, they were used even when they were not appropriate for the type of data required to generate information to answer the aim(s). Many studies, which used questionnaires, merely generated information that was really the perception of the respondents. (For example, what are the causes of deforestation in an area?) Methods MUST suit the aim(s).

When questionnaires are used as the main instrument of data collection, candidates should give the sampling details, for example, sample size and sampling method.

### **Presentation of Data**

Candidates should use at least three types of appropriate illustrations. It is useful to note that line graphs should only be used to show change over time and pie-charts should not be used to show 100 per cent value. The reliance on secondary data must be reduced.

When photographs are used, labels must be inserted. All axes on graphs must be labelled and candidates should avoid using two different types of illustration to represent the same data.

All illustrations should be numbered, for example, Figure 1 and should be referred to in the text.

### **Quality of Data**

Many candidates failed to obtain full marks for this area. It was apparent that several candidates did not do enough field work to meet the requirements of the aim. Candidates should ensure that the data they collect are relevant (answer the aim) and sufficient to draw reliable conclusions.

## **Analysis and Discussion**

Many candidates just described the data presented without any analysis of patterns or trends. Some aims did not lend themselves to much analysis. Candidates should note that the analysis requires an explanation of the data. Where possible, candidates should indicate whether their study supports text book explanations, theories, or models.

Often there was a lack of integration – where the candidate failed to refer to the relevant illustrations. When the aim is poorly stated, the analysis is often poorly done.

## **Conclusion**

Candidates must be reminded that the conclusion is a summary of the findings and answers the question or endorses the statement in the aim. Many candidates produced conclusions with new information – more suited to the analysis and discussion sections – and therefore could not be credited.

## **Communication of Information**

Candidates are advised to review their studies paying attention to the correct use of the English language.

Generally, there was good use of appropriate geographical terms.

## **Bibliography**

The candidate is expected to place at least two texts/sources in alphabetical order by author's surname. Many candidates were unable to do so. Teachers should ensure that candidates acquire this skill.

The list of resources in the syllabus uses the required style (the MLA style) and can be used as a model.

## **Paper 032 (Alternative to SBA)**

### **GENERAL COMMENTS**

This paper seeks to test the skills similar to those used in conducting a field study project and presenting the report. Candidates need to know these skills to do well. One hundred and eighty- seven candidates wrote the paper although nearly 300 were registered. The mean on this paper was 38 per cent, similar to that for 2013.

#### Question 1

Candidates were required to complete a sketch map by inserting selected features. Many of them experienced difficulty locating the features and omitted a key. Most also failed to draw the scale correctly.

#### Question 2

This question asked candidates to formulate an aim based on a given scenario. The responses were fairly done. Many candidates did not receive maximum marks due to poor expression. They could have used the scenario given and posed the question – *Are there differences in the wave action and beach profile before and after the hurricane season?*

### Question 3

Part (a) required candidates to list six items on the data sheet about which information would be recorded. Most candidates misinterpreted and listed the instruments required to measure the features. Instead of using examples such as 'wave height' and 'location of study', many wrote, for example, measuring tape, questionnaire.

In Part (b), candidates were asked to describe how and when data would be collected. Most identified appropriate methods of data collection, for example, wave frequency and wave height. However, too many candidates suggested the inappropriate use of the questionnaire for this question. Most answered the 'when' section correctly.

Part (c) required candidates to identify a problem that they may encounter when conducting the study. Many of them included factors which the question specifically excluded, for example, weather.

Possible problems include:

- access to the beach
- water safety
- working alone

It should be noted that with reference to Questions 2 and 3, candidates misidentified this research as a weather study rather than a coastal one.

### Question 4

In Part (a), candidates needed to complete a pie chart. Many of them omitted the year and country in the title. Many had inaccuracies in calculating the angles so the segments in the pie were inaccurate. The reliance on computer technology to make charts and diagrams seem to be impacting negatively on the skill to draw them manually. Despite having calculators, candidates had the wrong angles as candidates did not know how to calculate them.

In Part (b), candidates were asked to analyze the data in the table. Most simply compared the percentage between small and large farms. They were expected to look for patterns, similarities and differences in the effects, for example, drought affected the small farms more than the large farms but labour shortages which affected 65 per cent of the large farms had no affect on the small farms.

### Question 5

Part (a) required candidates to state **how** data would be collected. While most candidates identified the instrument to be used, they failed to indicate that the data should be taken at the same time each day.

In Part (b), candidates were asked to construct a bar graph. This was satisfactorily done.

Part (c) required candidates to summarize the data in the table. The responses overall were satisfactory.

Six points summarising the data in Table 3:

- The wind direction on the Island varied over the month.
- The dominant wind direction was north easterly.
- The wind blew north easterly for 50 per cent of the time under observation.
- The wind direction was easterly for 33 per cent of the time.
- The wind blew south easterly for 17 per cent of the time.
- The least likely wind direction on the island is easterly.

Question 6

This question focused on the knowledge of the elements of a book that are to be given in a bibliography. The fifth element in the bibliography was requested of the candidates. This was poorly done. Many candidates had no idea that the missing element was the *city of publication*.

Generally, candidates need more guidance on the requirement for Paper 032 if they are to improve their performance. Candidates need to know how to conduct fieldwork and prepare a report in order to achieve higher scores on this paper.