

CARIBBEAN EXAMINATIONS COUNCIL

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

JANUARY 2011

**INFORMATION TECHNOLOGY
GENERAL PROFICIENCY EXAMINATION**

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GENERAL COMMENTS

January 2010 was the second examination based on the revised syllabus which was examined for the first time in May/June 2010.

The revised syllabus is a combination of the former General and Technical proficiencies. Eight hundred and seven candidates wrote the examination and approximately 32 per cent obtained Grades I–III.

DETAILED COMMENTS

Paper 01 – Multiple-Choice

This paper consisted of 60 multiple-choice questions testing all areas of the syllabus. Thirty questions tested the Theory profile; 15 questions tested the Productivity Tools profile and 15 questions tested the Problem Solving and Programming profile. Candidates' mean performance was just above half of the maximum attainable mark. Areas of weakness which teachers must focus on are Problem Solving and Programming; Database Management and concepts associated with the Internet.

Paper 02 – Structured Responses Questions

This paper consisted of three sections with a total of 12 compulsory structured response questions. Section I consisted of six questions worth 60 marks, testing the Theory profile. Section II consisted of two questions worth 15 marks and which tested the Productivity Tools profile. Section III consisted of four questions worth 45 marks, testing the Problem Solving and Programming profile.

Section 1 – Theory

Question 1

Part (a) of the question tested candidates' ability to distinguish between the types of user interfaces. The majority of candidates were familiar with software user interface but were unfamiliar with hardware user interface. The majority of candidates were unable to state the name of one hardware interface such as touch screen and to provide an example such as a supermarket or automatic teller where it could be used.

Part (b) of the question tested candidates' knowledge of the types of processing modes. The majority of candidates were able to provide an advantage of real-time processing such as the information being up-to-date but were unable to provide a suitable disadvantage. One such disadvantage is that the computer must be online or solely dedicated to the task.

Part (c) of the question tested candidates' ability to distinguish between systems programs and application programs. Performance here was very encouraging. The majority of candidates were able to match the applications given with the types of software provided.

The mean score on this question was 3.81 which was 38.10 per cent of the total mark available.

Question 2

Part (a) of this question tested candidates' ability to convert numbers from binary to hexadecimal; find the two's complement representation of a negative number and find the ASCII code for a given character. This question was poorly done by the majority of candidates. Most of the candidates seemed unfamiliar with ASCII code as this is a new inclusion in the syllabus. For the hexadecimal, some candidates were able to get the answer **5 14** but did not convert the **14** to letter **E** as used in hexadecimal numbers. Two's complement continues to challenge candidates. While some candidates could convert 72 to binary (01001000), they could not find the one's complement of 72 (10110111) and add 1 to it to get the required answer (10111000).

Part (b) of the question tested candidates' ability to manipulate units of storage. It was satisfactorily done. Many candidates used 1 TB = 1000 GB instead of 1024 GB. The required answer was obtained by dividing 1024 by 16 = 64

Part (c) of the question tested candidates' ability to distinguish between primary and secondary storage media. The majority of candidates were able to identify the given storage media as primary or secondary storage media

The mean score on this question was 1.77 amounting to 17.7 per cent of the total attainable.

Question 3

This question tested candidates' ability to match input and output devices to given tasks. The majority of candidates scored high marks in this question. A few candidates could not recognize that plotters are used for printing of large building plans while Pads and Tablets are used for preparing architectural drawings.

This question produced the highest mean score (7.77 out of 10). Two hundred and ninety-one candidates scored the maximum mark.

Question 4

This question tested candidates' knowledge of terms associated with data communications and networks. Part (a) of the question was poorly done. The majority of candidates could not identify wireless as the type of transmission media used in the given scenario. Many candidates incorrectly provided responses such as e-commerce, Internet banking and telemarketing as the type of transmission media used in the given scenario.

Part (b) was satisfactorily done. Many candidates were able to explain that a hotspot is a public place where Internet access is provided via wireless. A variety of responses was

provided for the disadvantages of having access to a hotspot such as a place you could get robbed. Non-availability of secure access or having to pay for the access would also be suitable responses.

Part (c) of the question was well done. The majority of candidates were able to identify two devices that can be connected to a WI-FI such as a notebook computer, a cell phone, game console, MP3 player and PDA.

Part (d) was rather challenging for candidates. The majority of candidates were not familiar with the concept of 'line-of-sight' and 'scattered infrared' communication. Line of sight communication refers to a point-to-point communication between two devices whereas scattered infrared communication refers to a broadcast of infrared transmission in multiple directions.

Part (e) was equally challenging as candidates were not familiar with the terms as indicated in Part (d).

The mean mark for this question was 3.16 out of a maximum of 10.

Question 5

This question tested candidates' ability to provide advantages and disadvantages for given scenarios on current technological trends and the impact of Information Technology in the various areas of work. General performance on this question was just above average.

Part (a) of the question was poorly done as the majority of candidates were not familiar with the operation of an automatic voice mail system. Part (b) was well done. Most candidates were able to provide suitable advantages and disadvantages.

Part (c) was also well done. The majority of candidates were familiar with the use of credit and debit cards for transactions and were able to provide one advantage such as ease of payment and the ability to travel without cash. For the disadvantages, candidates mentioned that cards could get lost or stolen and the machines could malfunction. These were acceptable responses.

Part (d) of the question was satisfactorily done. The majority of candidates provided suitable advantages such as storage, retrieval of large amounts of information, and increased productivity. Finding suitable disadvantages proved challenging to candidates. Some candidates mentioned workers wasting time on Facebook or becoming lazy. A suitable disadvantage could be the need for workers to be retrained or keep themselves up-to-date with technology.

Part (e) was satisfactorily done. The majority of candidates were able to provide advantages such as tasks get completed accurately and on time. While most candidates provided health problems as disadvantages of using computers for a long period, others stated that the computer could get heated and burn up.

Question 6

This question tested candidates' knowledge of the various methods of file organization and files that are used with applications. Part (a) was satisfactorily answered but some candidates seemed unclear about the difference between ordered and unordered file structure.

Part (b) of the question was well done by the majority of candidates. Most of the candidates were able to correctly indicate whether the given files were temporary or permanent.

Section 2 – Productivity Tools

Question 7

This question tested candidates' knowledge of the basic features of a spreadsheet program. The majority of candidates were unfamiliar with concepts associated with spreadsheet such as range, function and chart. More practical work using a spreadsheet program is needed to correct this problem.

Although overall performance on this question was above average; only five candidates obtained the maximum marks for the question.

For Part (a), most candidates were able to indicate A3:A7 as the range of cells.

In Part (b), the majority of candidates could not identify the comma (,) format as the data format applied to the number of accounts.

For Part (c), most candidates did not recognize that the data was sorted on the Bank field.

In Part (d), the majority of candidates could not provide MAX(D3:D7) as the correct function

The majority of candidates could not provide the correct ranges (A3:A7 and E3:E7) used to create the pie chart for Part (e).

Question 8

The question tested candidates' knowledge of the basic features of a database management program. The majority of candidates found it difficult to provide suitable responses for the various parts of the question. More practical work using a Database Management program is needed to correct the difficulties experienced by candidates.

The majority of candidates could not determine that the Credits field was used to sort the COURSE table for Part (a).

In Part (b), many candidates were unfamiliar with the concept of a primary key and were unable to identify Cid as the primary key for the COURSE table.

The majority of candidates were able to join the table and identify Scott as the Dean of the Faculty offering the course ECN 100 for Part (c).

In Part (d), most of the candidates were unable to provide the correct query. A correct response would be Faculty = "NS" AND Credits > 5.

Most of the candidates could not provide the correct formula for the calculated field FEE. The expected response for Part (e) is as follows:

FEE: [Credits] * 250

In Part (f), the majority of candidates could not identify Faculty as the most appropriate field used to group the data in the COURSE table.

Section III – Problem Solving and Programming

Question 9

This question tested candidates' ability to manipulate data in an array.

Part (a) of the question was poorly done by the majority of candidates. Candidates were unable to correctly write the PASCAL code to declare the array List1. The correct response is as follows:

VAR List1: ARRAY[1..4] of integer;

Part (b) was poorly done as the majority of candidates could not write the correct contents of the two arrays after the execution of the segment of code provided. The correct response is as follows:

List 1:	1	1	0	1
List 2:	1	3	5	7

The contents of List2 are unchanged while the new contents of List1 are obtained by subtracting the elements of List2 from the elements of List1.

The mean score on this question was less than two out of a total of ten, with scores ranging from zero to ten. This area proved very challenging to candidates. Teachers are advised to devote as much time as possible to this area of the syllabus.

Question 10

This question tested candidates' ability to manipulate data in an array. The majority of candidates could not provide correct responses for the various parts of the question and seemed unfamiliar with the concepts tested. The correct responses are as follows:

(a) FOR index := 1 TO 4 DO
TEST[index] := "";

- (b) FOR index := 1 TO 4 DO
 IF TEST[index] = "*"
 THEN count := count + 1 ;
 WRITELN (count);
- (c) FOR index := 1 TO 4 DO
 IF (TEST[index]) <> "*" OR (TEST[index]) <> "#"
 THEN WRITELN("NO");

Performance on this question was also poor with scores ranging from zero to 15. The majority of candidates hardly scored on this question.

Question 11

This question tested candidates' ability to complete a trace table for a given algorithm. The majority of candidates were able to complete the trace table correctly for Part (a). For Part (b), the majority of candidates were able to identify LOOP as the control structure used in the given algorithm.

Question 12

This question tested candidates' knowledge of concepts associated with problem solving and programming. Many candidates did not have a clear understanding of the concepts required to answer the various parts of the question. Parts (a), (g) and (f) proved challenging to candidates but suitable responses were provided for the other parts of the question.

Paper 03/2 – Alternative to School-Based Assessment (SBA)

This paper is the alternative to the SBA and consisted of four questions testing the Productivity Tools and Problem Solving and Programming profiles.

Question 1 – Word Processing

This question tested candidates' knowledge of the various features of a word-processing application. The question was based on a memo provided.

Overall, word processing was poorly done. Candidates misinterpreted the question. They used actual information from the memo in their responses instead of explaining how they would arrive at the various features illustrated in the memo.

The average score on this question was below 5 per cent with performance ranging from 0 to 20.

For Part (a), many candidates stated that the justification was left instead of full justification.

Candidates were not able to recognize the various types of line spacing used in the memo on Part (b). Teachers need to practice using 1.5 and double spacing with their students.

In Part (c), formatting features were easily identified by candidates and was well done.

For Part (d), candidates were able to recognize the use of spell check and search and replace, although some were unable to state *how many* spelling corrections were made in the memo.

Part (e) required candidates to explain how they would modify the memo to ensure that the date would be the same as the computer date. This part was poorly answered as candidates stated that they would type in the date, instead of inserting a date field that would automatically update. Many candidates received no marks for this part.

For Part (f), candidates were required to indicate whether four features (header, footer, footnote, or endnote) were found in the memo. Candidates tried to justify where each of the features were found in the memo or defined the four features, instead of just selecting the correct answer.

Part (g) was well done as candidates were able to explain how they would remove the underline from a title.

In Part (h), candidates were unable to identify two documents that would be necessary to perform a merge for the memo. In many cases, they listed applications such as word processors, databases for the addresses, instead of stating the formal names of the document (for example, primary or main, secondary or data source).

Part (i) asked candidates to indicate the text in the memo that was appropriate for merge fields. The majority of candidates were unable to identify these. Some candidates simply ignored this part of the question.

For Part (j), candidates were unable to indicate how many merge fields (the recipient of the memo and his job title) would be used in the memo. They instead gave the number of records that would be obtained after the merge.

Question 2 – Spreadsheet

This question tested candidates' knowledge of the various features of a spreadsheet application. The question was based on the chart provided.

The mean score on this question was just above half of the maximum attainable. This signals good performance.

The majority of candidates were able to name the type of chart illustrated in Part (a).

In Part (b), candidates were able to name other types of charts that were appropriate for representing the data.

Many candidates misinterpreted Part (c) which asked for the purpose of the given chart, by giving a general statement about charts.

For Part (d), many candidates were able to identify the chart and x-axis titles, although a few wrote the actual names of the countries instead of the required label.

The majority of candidates were able to write the data that was used to create the chart for Part (e).

In Part (f), most of the candidates were able to state the numeric format that was appropriate for the data in the table.

Performance on Part (g) was fair, although some candidates only selected column B for the sort.

Part (h) was fairly well done, however, some candidates wrote the number instead of the country that would be at the top of the list.

For Part (i), many candidates wrote formulas instead of functions. They need to understand the difference between the two.

Many candidates had difficulty writing down the requirements of a criterion for filtering data in Part (j). Some attention should be paid to teaching this topic. Many candidates wrote the results instead of the criteria.

For Part (k), some candidates demonstrated an understanding of obtaining the results of the criterion, and answered appropriately, although the majority did not understand the concept.

Many candidates did not display adequate knowledge of the difference between justification and merging of cells in Part (l). Many candidates either indicated that they would centre the text or merge the cells; neither of these is correct.

Question 3 – Database Management

This question tested candidates' knowledge of the various features of a Database Management application. The question was based on a database with two tables and a report generated from the data in the database.

The mean score on this question was below half of the maximum attainable marks, scores ranged between 0 and 20.

In Part (a), some candidates were unable to differentiate between field names and data types.

For Part (b), some candidates confused fields with records

Candidates were able to explain why some fields are not suitable for a primary key for Part (c).

In Part (d), some candidates were able to identify that the arrangement of the records was a sort.

For Part (e), candidates were able to indicate the number of diplomats from Africa who visited the country.

Some candidates were able to state the fields which grouped, sorted and summarized the data in the report for Part (f).

In Part (g), candidates understood what was required for the calculation in the query, but could not formalize the correct syntax.

For Part (h), the majority of candidates were able to indicate which table was used to perform the stated query and what the 6430 represented.

In Part (i), candidates were able to state what the required query was asking for and also the result of the execution of the query.

Question 4 – Programming and Problem Solving

This question tested candidates' knowledge of concepts associated with problem solving and programming.

The mean score on this question was less than 10 out of a maximum of 30. Similar to Paper 02, Programming and Problem Solving continue to be a very challenging area for students. Teachers need to address this problem.

Most candidates attempted this question and were able to identify at least one of the variables. However, a small percentage of candidates listed the contents of the line where the variable was located. This was not required.

Part (b) was poorly done. Most candidates were unable to properly write their responses while others had their order written backwards.

The majority of candidates attempted Part (c), however, they failed to set down the declaration in the correct order or format

Many candidates attempted Part (d), however, their results suggested that they had difficulty tracing the code

Most candidates attempted Part (e), however, some candidates had difficulty identifying the correct line number.

In Part (f), candidates gave the general definition of an algorithm but did not understand what the given algorithm was intended to do.

Many candidates attempted Part (g) but it was poorly done. A small percentage of candidates received very good marks for this part question.