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 2013

INFORMATION TECHNOLOGY

GENERAL PROFICIENCY EXAMINATION

GENERAL COMMENTS

In May/June 2013, 26 552 candidates from the participating territories wrote the Information Technology Examinations. This represents a decrease of 3.5 per cent when compared with May/June 2012**.**

DETAILED COMMENTS

Paper 01 – Multiple Choice

This paper consisted of sixty multiple choice questions testing all areas of the syllabus. Some areas of difficulty included the following:

- Methods of file organization and access – sequential access, index-sequential
- Current and emerging technological trends – CADD, CAE, CAM
- Application software: concepts and technical terms associated with word processing, spreadsheets, database management, webpage design and presentation (PowerPoint) software
- Problem-solving and program design:

  – Determining the output of a program segment/algorithm.
  – Use of logical operators in a truth table

Program implementation:

  – Valid data types in Pascal
  – Declaring arrays in Pascal
  – Classifying programming languages into different generations

Paper 02 – Structured Questions

This paper consisted of three sections with a total of twelve compulsory structured questions. Section I consisted of six short answer questions worth a total of 60 marks and testing the Theory profile. Section II consisted of two structured questions worth a total of 15 marks and testing the Productivity Tools profile. Section III consisted of four structured questions totalling 45 marks and testing the Problem-Solving and Programming profile.

Section I — Theory

Question 1

Part (a) required candidates to identify an input or output device that is best suited to perform each of a number of given activities. This part of the question was well done by the majority of candidates. Some candidates incorrectly provided both an input and an output device for each activity.
Examples of correct responses are as follows:

(i) *monitor or printer or multimedia projector*
(ii) *plotter or graphics tablet or digitizer or light pen*
(iii) *joystick or game console or mouse or keyboard*
(iv) *bar-code reader or POS terminal*
(v) *biometric device or biometric scanner or fingerprint scanner*

In Part (b), candidates were required to state two characteristics to consider when purchasing a printer. This part of the question was also well done by the majority of candidates who provided a variety of characteristics to consider when purchasing a printer. An example of a correct response is as follows:

Any two factors: speed; quality of print; storage capacity; size, cost; noise level; power consumption; colour/black and white; print volume of cartridge; compatibility with operating system; performance rating; manufacturer's warranty; paper handling capacity.

Part (c) required candidates to state the general name associated with a device such as a printer. This part of the question was well done by the majority of candidates. An example of a correct response is as follows:

Output device or hardware device or peripheral device
For Part (d), candidates were asked to explain the term 'bi-stable device'. This part of the question was satisfactorily done by the majority of candidates. Some candidates provided examples of bi-stable devices such as a switch being "on" or "off", while other candidates seemed unfamiliar with the term "bi-stable device". An example of a correct response is as follows:

A bi-stable device is a device that can exist in one of two discrete states.

Question 2

Part (a) required candidates to provide the names of two types of user interface and to indicate an appropriate input device that can be used in each user interface provided. The majority of candidates provided the names of two types of user interface but some of the candidates were unable to provide the appropriate input device for each user interface identified. In some cases, candidates incorrectly provided interfaces used with hard disks such as SATA and SCSI. Examples of a correct responses are as follows:

- *Command driven/command line Interface — Keyboard used as input device*
- Menu interface — pointing device (mouse) and keyboard used as input device.
- Graphical user interface — pointing device (mouse), touch screen and light pen used as input device.

In Part (b), candidates were required to identify the type of menu illustrated in the question. The majority of candidates correctly identified the illustration of Menu A but Menu B illustration proved challenging. An example of a correct response is as follows:

- *Menu A — pulldown/dropdown menu*
- *Menu B — popup menu*

Part (c) tested candidates' knowledge of operating systems. The majority of candidates could not provide an example of operating system software. In addition, many candidates listed four functions of an operating system without providing any explanation rather than providing one function with the required explanation. An example of a correct response is as follows:

(i) *Windows or DOS or Linux or Unix or Mac OS*

(ii) Any ONE function with explanation from the following:

- *Process management: Allocates time or resources of the CPU to each process that the computer is running*
- *File management: creates/deletes/renames files/folders.*
- *Memory management: allocates areas of memory to different programs so that each program can function effectively*
- *Input/output device management: makes communication possible between peripheral devices and the system unit*
- *Security: provides the user with protection mechanism(password)to prevent unauthorized access*
- *User Interface: helps the user to interact with the computer*

Question 3

This question required candidates to demonstrate their knowledge of the ways information can be misused. This question was poorly done by the majority of candidates who could not provide the technical terms for the given statements.

Examples of correct responses are as follows:

(a) (i) *Industrial espionage*
(ii) *A computer virus/malware/worms*
(iii) *Software piracy*
(iv) *Identify theft*
(v) *Computer fraud*

(b) (i) *Propaganda*
(ii) *Unauthorized access/hacking*
(iii) *Surveillance or electronic eavesdropping*
(iv) *Credit and debit card fraud*
(v) *Invasion of privacy*

Question 4

For Part (a), candidates were required to state the differences between RAM and ROM. This part of the question was well done by the majority of candidates. An examples of a correct responses are as follows:

Any two differences indicated in the table below.

RAM	**ROM**
Temporary	*Permanent*
Volatile	*Non-volatile*
Needs an electrical current to hold the information	*Does not need an electrical current to hold the information*
Can be upgraded	*Cannot be upgraded*
Larger capacity	*Smaller capacity*

In Part (b), candidates were required to provide two reasons for computers to have secondary storage. The majority of candidates could only provide one reason which is to store data permanently. Examples of correct responses are as follows:

Any two of the following:

(i) *To store data permanently*
(ii) *To transfer data from one computer to another in a stand-alone environment*
(iii) *To backup data and program*

Part (c) required candidates to match the features of storage devices with their names. This part of the question was well done by the majority of candidates. Some candidates did not know the storage capacity of a floppy disk. This may be because floppy disks are rarely used currently. The correct/matching responses are as follows:

I. *C*
II. *E*
III. *B*
IV. *F*
V. *A*
VI. *D*

Question 5

In Part (a), candidates were asked to state the purpose of encryption and to indicate the type of data that a company may want to encrypt. This part of the question was poorly done by the majority of candidates. Some candidates had a general idea of encryption but could not identify the data that the company may want to encrypt. An example of a correct response is as follows:

(i) *To ensure that the data cannot be interpreted (translated) during transmission except by the intended user.*
(ii) *Confidential data*

In Part (b), candidates were asked to indicate two security measures to protect data from unauthorized access. The majority of candidates provided only one security measure. The use of a password was the popular choice. Possible correct responses include:

Password; biometric system; *file access restriction; separate user accounts*

In Part (c) candidates were required to provide two precautionary measures to protect data in the event of a fire. This was satisfactorily done as the majority of candidates indicated the use of a fire-proof safe and data backup. However, many candidates did not mention that the data backup should be stored in another location. An example of a correct response is as follows:

- *Backup and storing in another location*
- *Storing backup data in a fireproof safe*

In Part (d) candidates were required to provide two validation checks and explain what each check does. Most candidates provided the names of the validation checks but could not describe what the checks did. Possible correct responses include any two of the following:

- Range Check – to ensure that the input data is within a given range. For example, the month number is between 1 and 12 inclusively.
- Reasonableness check – to find out if the input data is realistic. For example, the height of a person is not above 8 ft.
- Data type check – to find out if the input data is of the correct type. For example, characters only are entered for a person's name.
- Inconsistency/consistency check – to ensure that the data entered in one part of the form is consistent with the data in another part of the form. For example, the date of birth entered tallies with the present age of the client.

Question 6

This question required candidates to demonstrate their knowledge of how numbers are stored and manipulated in the binary, hexadecimal and ASCII system. This question was satisfactorily done by the majority of candidates. An example of a correct response is as follows:

(a) *16* | *21*

1 r 5

$21_{10} = 15_{16}$

(b) *D = 1000100*
G is 3 letters/positions after D
3 = 011
G = 1000100 + 011 = 1000111

(c) *Binary Coded Decimal*

(d) *Each digit is represented using a 4 bit binary code*

Section II – Productivity Tools

Question 7

This question required candidates to state the basic features of a spreadsheet program. It was satisfactorily done by the majority of candidates.

In Part (a), the majority of candidates indicated correctly the numbers of rows used to insert data in the spreadsheet.

For Part (b), many candidates provided the correct formula or function. In some cases, however, an incorrect range was provided in the formula/function

In Part (c), many candidates sorted the range in descending order instead of ascending order and as such provided the wrong cell address.

For Part (d), many candidates could not provide the correct functions to count the number of items in a range and to find the minimum value in a range.

An example of a correct answer is as follows:

(a) *6 or 7 rows*
(b) (i) *= Sum (B4:D4 or = B4 + c4 + d4*
(ii) *A4*

(c) (i) Count or countA
(ii) Min

Question 8

In this question candidates were required to demonstrate their knowledge of basic features of a database management program. This question was satisfactorily done by the majority of candidates.

For Part (a), many candidates could not provide the appropriate field names, data types and descriptions.

While in Part (b), many candidates provided the appropriate primary key.

In Part (c), many candidates provided the complete criteria while some candidates provided part of the criteria (>500) without stating the field to be used in the criteria.

In Part (d) of the question, the majority of candidates correctly identified a report as the database feature.

An example of a correct response is as follows:

(a)

Field Name	Data Type	Field Description
Customer Name	*Text*	***The first name and last name of individuals***
Money Owed	*Number OR Currency*	***The amount of money owed***
Phone Number	*Text*	***Phone contact of the person in the format xxx-xxxx***

(b) *Phone Number/customer name*

(c)

Money Owed
>500.00

(d) *Report*

Section III – Problem Solving and Programming

Question 9

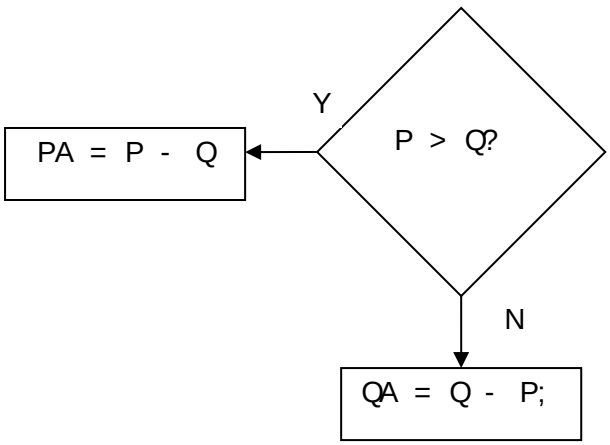
This question tested candidates' ability to construct a flowchart on a given scenario and to complete the given truth table and trace table.

Part (a) was satisfactorily done by the majority of the candidates. Some candidates seemed unfamiliar with the use of flowchart symbols used to represent: decision, input/output, processing and data flow.

Part (b) was well answered although some candidates did not following the program fragment to complete the columns with headings PA and QA and populated the entire two columns rather than the specific cells.

An example of a correct response is as follows:

(a)



(b)

P	Q	P > Q?	PA	QA
1	1	**N**		**0**
1	0	**Y**	**1**	
0	1	**N**		**1**
0	0	**N**		**0**
P	Q	P > Q?	PA	QA
1	1	**N**		**0**
1	0	**Y**	**1**	
0	1	**N**		**1**
0	0	**N**		**0**
P	Q	P > Q?	PA	QA
1	1	**N**		**0**
1	0	**Y**	**1**	
0	1	**N**		**1**
0	0	**N**		**0**

Question 10

This question required candidates to analyse the code of a Pascal program to identify program errors, to rewrite it using correct syntax and to determine the output of the program.

Part (a) of the question was poorly done by the majority of candidates.

Part (b) was also poorly done. The majority of candidates were unable to initialize the variable x to 0 and to state the line number to indicate where it should be placed in the program.

An example of a correct response is as follows:

(a) (i) *no output* or cannot compile
(ii) *Line 9 / no line number*
(iii) *syntax error*
(iv) *Line 9:*
else writeln('Y is the smaller number');
(v) *Conditional/selection/if-then-else*

(b) (i) *X := 0*;
(ii) *Line 5*

Question 11

This question required candidates to declare an array in Pascal. This question was poorly done by the majority of candidates. Some candidates interchanged the content of the array with the index and as such provided the incorrect response. In addition, many candidates seemed unfamiliar with the structure of an array declaration.

An example of correct array declaration is as follows:

Var list :array[1..6]of char;

Question 12

This question required candidates to write program statements in Pascal for given specific tasks.

Part (a) of the question was well done by the majority of the candidates. However, in some cases, candidates did not provide the semi-colon at the end of the statement

Part (b) of the question was satisfactorily done by the majority of the candidates but in many cases, candidates seemed unfamiliar with the integer data type and incorrectly used whole number or real as the data type.

Part (c) was satisfactory although candidates wrongly used the algorithm assignment operator (←) instead of the Pascal assignment operator (:=).

Part (d) was satisfactorily done by the majority of candidates. However, some candidates used the PRINT command instead of the Pascal command Writeln. In addition, some candidates used the WRITELN command but incorrectly put the variable SUM in quotes ('SUM').

An example of a correct response is as follows:

(a) *PROGRAM TOTAL*;
(b) VAR SUM: Integer;
(c) SUM :=O;
(d) Writeln(SUM);

Paper 03 – School-based Assessment (SBA)

The school-based assessment consisted of a practical project testing Profile 2, Productivity Tools (word processing, spreadsheets and database management), and Profile 3, Problem-Solving and Programming.

The following are some general comments on aspects of the SBA that emerged from the moderation exercise this year.

1. The presentations of the SBAs have improved in some territories.
2. In most cases, the description of the project was not submitted.
3. Project components were not separated and labelled.
4. Tasks completed in the various SBA components were not identified.

Sample Uniqueness

In many instances, there was a lack of uniqueness among SBAs coming from the same centre. In some cases, evidence was seen in many of those samples that one candidates' work was used for the other candidates' samples, or a template was provided for the candidates to insert a few changes prior to submission. This is completely unacceptable. The syllabus states clearly that an SBA sample should be the candidate's original work.

Moderation Sheets

1. The samples sent by the school should match that generated by CXC SIRS system.
2. Computer-generated printouts must match the marks and candidates on the moderation sheet and samples submitted.
3. Teachers should mark the SBAs and place the marks on the moderation sheet on the row labelled *Teacher*.

Mark schemes

1. Some teachers failed to adhere to the current CXC guidelines and mark scheme.

2. It is recommended that teachers familiarize themselves with the CXC mark scheme to allow candidates a better chance of gaining marks for the tasks. Teachers should also breakdown the marks in the mark scheme by identifying the tasks for the allocation of each mark.

3. In some schools that have more than one teacher the teachers did not seem to work collaboratively to produce one project and one mark scheme.

4. The mark schemes for the individual candidates were missing from a number of the samples.

Hardcopy and softcopy submissions

1. Some teachers continue to submit only softcopies (CDs). Hardcopies/printouts are required.

2. Teachers should make sure that each candidate's SBA is bound and properly held together and labelled.

3. Teachers are advised not to use red or green ink when marking the SBA as these colours are used by the moderators. Black or blue ink or pencil is acceptable.

4. Students should avoid submitting lengthy irrelevant data in the SBA. Fifteen to twenty pages for each component is more than adequate.

5. Where there is more than one teacher, one common SBA and mark scheme should be submitted.

6. Half marks should NOT be awarded for any task.

7. Marks should be given for work actually completed by the candidate. Evidence of this should be seen in the hard copy submitted.

Word processing

1. Teachers created their own SBA questions and for this they should be complimented. However, these questions were not always structured to assess skills relevant to the word processing component of the syllabus, such as formatting features (inclusive of tables, columns, text formatting, bullets and numbering).

2. Teachers are asked to create/use SBA assignments which require candidates to perform ALL of the skills being assessed by the marking scheme. Tasks which should be included as part of the SBA assignment are as follows:

   (a) Creation of table(s) using the table feature in Microsoft Word (imported tables will not be awarded the marks for this criterion).
   (b) Separation of text or pages into two or more newspaper type columns.
   (c) Changing of paper size and/or orientation, and text orientation
   (d) Changing of line spacing, justification and alignment
   (e) Changes in page margins
   (f) Insertion of graphics

3. In some cases, teachers' mark schemes were inconsistent with the CXC mark scheme; for example, candidates were awarded marks for content rather than completion of specific tasks or marks awarded exceeded the suggested maximum for the specific sections. This should be avoided.

General note: Mark schemes should be broken down as completely as possible, based on specific skills, and marks allocated in accordance with the mark scheme provided in the CSEC Information Technology syllabus guidelines.

4. Software programs that are not considered to be word processing software (e.g. Microsoft Publisher) should not be used to generate samples for word processing.

5. Some samples showed significant signs of similarity. Teachers should allow students to use their creativity.

6. Most of the formatting features were used by all candidates. However, candidates rarely demonstrated simultaneous use of single and double line spacing and page numbers, multiple page documents were used.

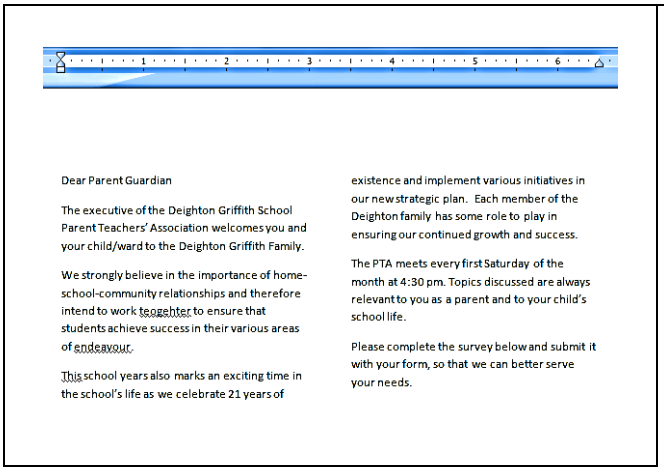
7. Most candidates used headers and footers. Footnotes and endnotes were rarely used. Headers or footers should appear on consecutive pages especially in cases where the mail merge feature is used.

8. The effective use of tables and columns was not adequately demonstrated.

   (a) Candidates were expected to separate a document or body of text into "newspaper style" (either 2 or 3) columns. This can be demonstrated in brochures, pamphlets or within a typed document.
   (b) Inserting a table using Microsoft Word and then adding data was not done in many cases. Appropriate borders and shading may be shown. Importing spreadsheet or database tables was done very frequently and this does not reflect the skill being tested.

The following are examples of how these aspects could have been presented:

(a) Correct use of columns



Dear Parent Guardian

The executive of the Deighton Griffith School Parent Teachers' Association welcomes you and your child/ward to the Deighton Griffith Family.

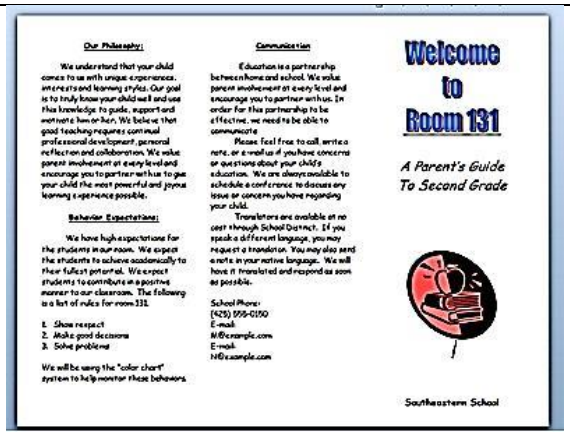
We strongly believe in the importance of home-school-community relationships and therefore intend to work togehter to ensure that students achieve success in their various areas of endeavour.

This school years also marks an exciting time in the school's life as we celebrate 21 years of existence and implement various initiatives in our new strategic plan. Each member of the Deighton family has some role to play in ensuring our continued growth and success.

The PTA meets every first Saturday of the month at 4:30 pm. Topics discussed are always relevant to you as a parent and to your child's school life.

Please complete the survey below and submit it with your form, so that we can better serve your needs.

Example of text separated into two columns as part of a document.



Our Philosophy:

We understand that your child comes to us with unique experiences, interests and learning styles. Our goal is to truly know your child well and use this knowledge to guide, support and motivate him or her. We believe that good teaching requires continual professional development, personal reflection and collaboration. We value parent involvement at every level and encourage you to partner with us to give your child the most powerful and joyous learning experience possible.

Behavior Expectations:

We have high expectations for the students in our room. We expect the students to achieve academically to their fullest potential. We expect students to contribute in a positive manner to our classroom. The following is a list of rules for room 131.

1. Show respect
2. Make good decisions
3. Solve problems

We will be using the "color chart" system to help monitor these behaviors.

Communication

Education is a partnership between home and school. We value parent involvement at every level and encourage you to partner with us. In order for this partnership to be effective, we need to be able to communicate.

Please feel free to call, write a note, or e-mail us if you have concerns or questions about your child's education. We are always available to schedule a conference to discuss any issue or concern you have regarding your child.

Translators are available at no cost through School District. If you speak a different language, you may request a translator. You may also send e-mails in your native language. We will have it translated and respond as soon as possible.

School Phone:
(425) 555-0150
E-mail:
MR@example.com
E-mail:
MR@example.com

Welcome to Room 131

A Parent's Guide To Second Grade

Southeastern School

Example of page separated into three columns and used to create a brochure. Landscape orientation is also used here.

(b) Correct use of tables

A table should have clearly defined rows and columns. The use of different borders and/or shading is also advised.

This school years also marks an exciting time in the school's life as we celebrate 21 years of existence and implement various initiatives in our new strategic plan. Each member of the Deighton family has some role to play in ensuring our continued growth and success.	This school years also marks an exciting time in the school's life as we celebrate 21 years of existence	We strongly believe in the importance of home-school-community relationships and therefore intend to work teogehter to ensure that students achieve success in their various areas of endeavour.
The executive of the Deighton Griffith School Parent Teachers' Association welcomes you and your child/ward to the Deighton Griffith Family.	The PTA meets every first Saturday of the month at 4:30 pm. Topics discussed are always relevant to you as a parent and to your child's school life. Please complete the survey below and submit it with your form, so that we can better serve your needs.	

9. Many centres did not submit all the required printouts for the mail merge Candidates are expected to submit the following in order to achieve maximum marks:

(a) A primary document with the names of the merge fields inserted
(b) A secondary document with the data for the merge fields inserted in the appropriate location.

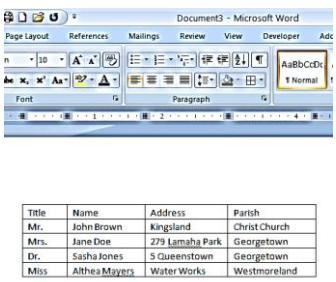
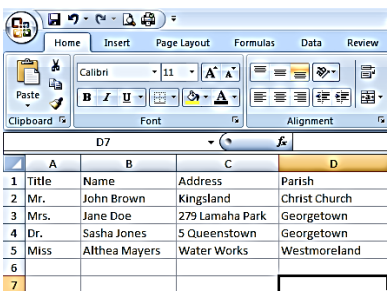
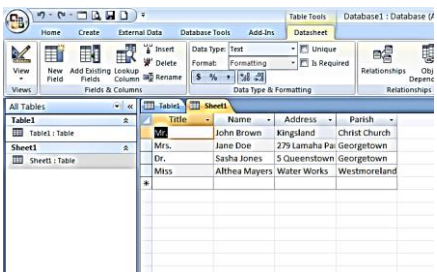
Merge fields should be linked to the data source rather than typed in by the candidate.

Merge Field Example

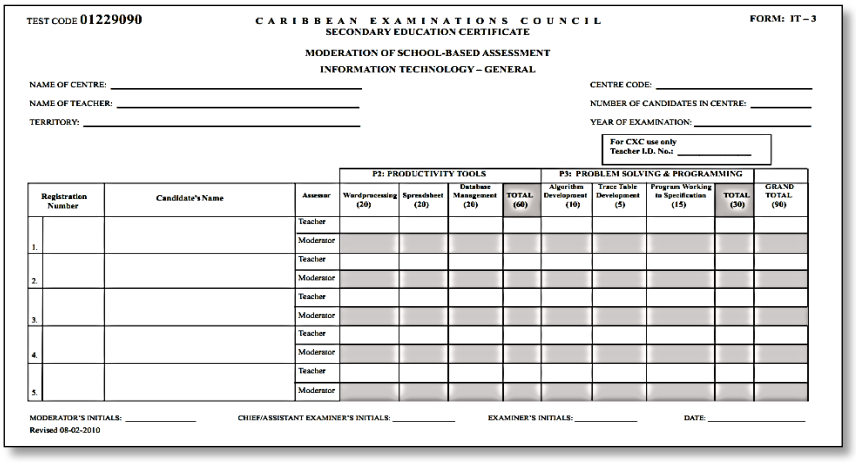
Correctly inserted fields	**Typed merge fields**
«Title» «Name» «Address» «Parish»	<Title> <Name> {Address} <<Parish>>

(c) A copy of the data source as mentioned below in #12
(d) A small sample of printouts of the **completed merge (at least three but no more than five**). Candidates are **NOT** required to print all the merge letters.

10. Data source as evidence of the mail merge must be submitted. Evidence of a data source could be either:

a table in Word	**a worksheet in Excel**	**or a database table**
		

11. A few teachers did not submit completed CSEC Moderation Sheets for the School Based Assessment detailing the breakdown of marks for candidates in the sample. The form shown below should be completed and submitted.



TEST CODE **01229090** — CARIBBEAN EXAMINATIONS COUNCIL — FORM: IT – 3

SECONDARY EDUCATION CERTIFICATE

MODERATION OF SCHOOL-BASED ASSESSMENT

INFORMATION TECHNOLOGY – GENERAL

NAME OF CENTRE: _____ CENTRE CODE: _____

NAME OF TEACHER: _____ NUMBER OF CANDIDATES IN CENTRE: _____

TERRITORY: _____ YEAR OF EXAMINATION: _____

For CXC use only
Teacher I.D. No.: _____

	Registration Number	Candidate's Name	Assessor	P2: PRODUCTIVITY TOOLS				P3: PROBLEM SOLVING & PROGRAMMING				GRAND TOTAL (90)
				Wordprocessing (20)	Spreadsheet (20)	Database Management (20)	TOTAL (60)	Algorithm Development (10)	Trace Table Development (5)	Program Working to Specifications (15)	TOTAL (30)	
1.			Teacher									
			Moderator									
2.			Teacher									
			Moderator									
3.			Teacher									
			Moderator									
4.			Teacher									
			Moderator									
5.			Teacher									
			Moderator									

MODERATOR'S INITIALS: _____ CHIEF/ASSISTANT EXAMINER'S INITIALS: _____ EXAMINER'S INITIALS: _____ DATE: _____

Revised 08-02-2010

12. The overall quality of the selected samples was satisfactory.

13. There was an improvement in the packaging of SBA samples but there are still some centres that submitted loose pages. Some centres are still submitting an excessive number of pages in their SBA and better presentation of the packaging of the samples is required as well.

14. Candidates should not produce screenshots of pages in this section. These are usually difficult to read after being resized and may result in the loss of marks for the relevant areas.

Spread-sheets

Approximately 85 per cent of candidates sampled were able to score 50 per cent and above in the spreadsheet section of the SBA.

Formulas and Formula Sheets

In numerous samples, there were no formulae sheets. This worked to the disadvantage of the candidates, leading to loss of marks. Teachers need to convey to students the process of printing formulae sheets, and insist that students print and submit them in their final submission. Formulae sheets must be legible. Samples need to show evidence of candidate's ability to accurately use formulas including incorporating absolute cell referencing (F2). This must be seen in formula sheets that are submitted in order for marks to be awarded. A minimum of two functions should be used in the solution.

Formatting Features

In the event of an insertion or deletion of records, records must be highlighted for easy identification. A separator or label indicating the 'before or after' insertions or deletions must be included as well.

Sorting

Sorted records must be clearly identified by highlighting or labelling the sorted range. Candidates must include a statement on the sorted page indicating the particular field (fields) upon which the sort has been performed.

Charting Operations

In some instances, graphs were not printed, or when graphs were printed, the axes were not labelled and legends and/titles were missing. Teachers must ensure that axes are labelled and an appropriate title assigned to the chart. Teachers must place greater emphasis on chart creation and labelling. Although, candidates can be given one graph to do as part of the SBA, the graph should show a comparison of at least two series of data.

Extraction of Data and Criteria Range

Many candidates failed to successfully perform advanced filtering or a complex criterion. Teachers must ensure that the advanced filter is part of the SBA. Evidence of the criteria used must be shown, as well as the results. The criteria range and the results must appear on the same page. A caption (heading) should be used to clearly indicate the presence of the criteria range filter. Alternatively, a screen shot can be presented if the filter buttons are used but the criteria must be seen.

Length of SBA

In the area of spreadsheet formatting, much improvement is needed in order to limit printouts. Too many unnecessary printouts were submitted. Teachers and students need to concentrate more on the quality of work done, specific to the tasks, rather than copious quantities of unnecessary printouts.

The number of printouts must be limited (at most 15 pages inclusive of formulae sheets, the actual worksheets, advanced filter data, and charts) to avoid unnecessary and repetitive printouts.

Documents must be well-formatted so as to ensure good printouts. Candidates must make good use of page breaks for column adjustments to ensure that data and charts are not spread across several pages in a way which makes them difficult to understand or interpret. Teachers should avoid giving students SBAs that require the use of a large number of columns which results in some level of difficulty to print.

Presentation

The SBA report is a required document and therefore must be presented in a coherent manner. Printouts must be properly and carefully collated, secured and labelled so as to ensure good presentation. Spread sheet printouts should be in one section, database management printouts in another section, and word processing and problem solving printouts in their separate sections as well.

Syllabus Guidelines for Marking SBA

Teachers are strongly urged to strictly adhere to CXC's mark scheme as provided in the syllabus. Marks should NOT be allocated to tasks that are not in agreement with this mark scheme. The assignment details must also be submitted.

Screenshots

Screenshots must NOT be used as a substitute for default worksheet printouts.

Database Management

Overall, the SBA samples were well done with most assignments chosen being relevant to the syllabus and appropriate for the CSEC level. Moreover, the assignments adhered to the length specified by the syllabus and the required format. Some issues highlighted in reports done in the previous years were not repeated and this proved that collectively regional teachers and candidates are producing a higher standard of SBAs.

The majority of the SBA submissions were marked in accordance with CXC guidelines but, some teachers failed to show the breakdown of marks when more than one mark was allocated to a task. Approximately 75 per cent of candidates sampled were able to score 50 per cent and above in the database management section of the SBA. A definite improvement is needed in this section.

Printouts and Packaging

While it is advisable that tables/ queries/ screen shots fit on one page, they should still be legible. Suitable packaging of individual samples should be employed. All pages should be properly bound with clearly defined sections (tables, queries, report).

It was difficult in some samples to distinguish tables from queries. Candidates are advised to use appropriate labels on each sheet.

e.g Table: Personal Info
Query: Salaries above $5000.00

or

Personal Info Table
Salaries above $5000 query

Candidates should use one paper size only when submitting SBA assignments in order to enhance presentation.

Duplications of printouts should be avoided.

Properly and correctly completed individual mark schemes should always accompany each sample submitted.

Samples should be properly organized and bound. All submissions should be printed directly from the database software and all parts of the SBA must be submitted as hard copy.

Tables

Most samples contained two or more database tables. However, it is imperative that candidates present hard copies of all database tables. It should be noted that for every table, the datasheet view and the design view (screen shot) **MUST** be submitted as evidence of appropriate table design. This should show any primary key used and the data types and field properties.

Modifying Database Tables/Files

Many candidates attempted to modify tables/table structures by performing additions/deletions of records/fields. In some cases, however, there was no supporting evidence provided to indicate the change made to the table/ table structure. When attempting to modify tables/ table structure, candidates should show printouts of 'before' and 'after' the modification. Additionally, candidates should indicate the record or field which is being modified for example:

Deletion of record with customer idno = '7345'

Queries

Generally, most candidates were able to perform queries. However, some of the candidates failed to show the design views (screen shots). Candidates must take note that when presenting design views of queries, both the tables used in the query and the criteria **MUST** be clearly shown. In addition, where a calculated field is being created, the complete formula must be visible in the design view screen shot. It is advisable that SBA assignments include queries with multiple conditions (criteria). Failing to follow these guidelines may result in loss of marks.

Reports

Some samples did not show reports. It was also noticed that reports were only provided in the word processing section. The majority of candidates did not produce any form of grouping in their reports. More emphasis should be placed on this aspect, with the inclusion of more than one record per group. Summary/statistical features should be included. Evidence of sorting must be shown in reports which should be titled appropriately.

Mark Scheme

The mark scheme in the syllabus for database is divided into three sections. Teachers should adhere to this. It was observed that teachers allocated sometimes more and sometimes fewer marks per section than is allowed by the mark scheme. Individual mark schemes must be submitted for each sample submitted. Using CXC guidelines, the mark scheme must be broken down to show how each mark is allocated. Teachers are reminded that CXC does not award fractional marks for the SBA, therefore they should not allocate fractional marks in assessing their students.

Section 1 of mark scheme

The first section of the mark scheme deals with the creation and modification of database tables and fields. The following are some issues highlighted:

(a) Design views showing different data types, changing in field definitions, addition and deletion of fields, primary keys and changes in field size were missing in many samples. In order to attain maximum marks in this section, it is required that design views of the database tables with all the above are placed in the report

(b) If field sizes, field definitions or records are modified, before and after screen shot must be shown in order to prove that this has taken place.

(c) Many centres submitted SQL. Once the design views of tables and queries are submitted , there is no need for SQL submissions.

Section 2 of mark scheme

This section deals with the creation of queries.

(a) The design views of the queries were very rarely shown. In order to gain maximum marks, the design view printouts are essential. This would prove the tables used are the correct ones and that an accurate relationship/join was done.

(b) Multiple criteria and queries using multiple tables should be used. In many instances this was not shown which may have resulted in loss of marks.

(c) Calculated fields were done fairly well but here again, the majority of centres did not submit any design views to prove the correctness of calculated fields used.

Section 3 of mark scheme

This section deals with the creation of reports.

Samples that contained reports revealed that they were done fairly well. However, there were instances of reports having many pages excluding some key aspects that would have helped the candidates attain maximum marks. Please note that only one report is needed but it must show the following.

- Grouping on a field
- Sorting on a field
- Use of summary features, that is, count, sum, average, grand total
- Selection of correct fields necessary for the creation of the report

Teachers awarded marks for aspects such as formatting of the report title, presentation of reports, and spelling accuracy. This does not adhere to the mark scheme. Teachers should not assign marks for any aspect of the report other that those listed above.

Problem Solving and Programming

Overall, the SBA samples revealed that this section gave the candidates the most difficulty. Candidates generally scored the lowest in this component although the quality of the samples has improved from previous years. Approximately 65 per cent of candidates sampled were able to score fifty per cent and above in this section of the SBA. However, an unacceptable 15 per cent of samples presented no responses for this section. A definite improvement is needed in this section of the SBA as well.

Presentation

The samples submitted for this year showed an improvement in the way they were demarcated, in that (separate and distinct sections for each of the components were indicated). Many of the samples submitted had the sections clearly presented with an appropriate table of contents, page numbering, well-labelled headings for sections such as trace tables, pseudocode and Pascal source code. Teachers should ensure that hard copies are submitted for moderation.

Problem Solution

There is concern relating to the creativity of the problem solutions produced. It was evident that templates were used in a small per-centage of the solutions submitted and this should be avoided. In some cases, the printed work submitted for several candidates was identical. Further, a small per-centage of the samples submitted were not substantive in nature and the solutions provided were too trivial. Teachers should encourage their students to produce original solutions to the problems presented.

Problem Statement

About 75 per cent of the candidates attempted to produce problem statements. However, only about 40 per cent completed them accurately. Some of the candidates resubmitted the question that was given, while others gave a simple phrase which did not provide a comprehensive description of the problem. It should be noted that an appropriate problem statement should take the form of a paragraph and should give an indication of the necessary input, output and processing requirements for the problem.

For example:

Using the TrinBarJam Elections SBA given in the syllabus, an example of an **inadequate** statement would be:

"*This pseudocode identifies the winning candidate of an election*."

A more appropriate problem statement would be:

"*The following pseudocode is designed to find the winning candidate. It will accept the candidate's name and number of votes. It will determine the highest votes and output the winner's name*."

Flowcharts/Pseudocode

Over 90 per cent of the candidates attempted this section. Some candidates submitted both flowchart and pseudocode. Only one of these was required.

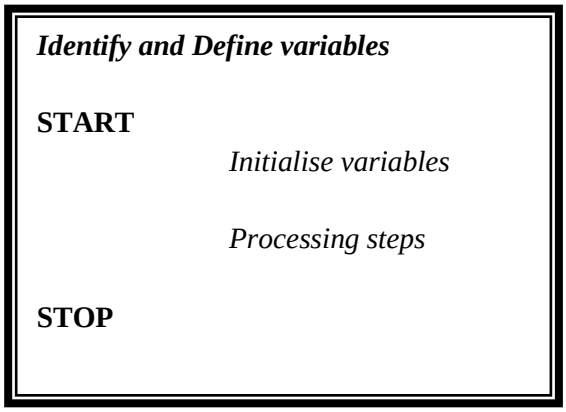
Flowcharts

Proficiency in the use of flowcharts was generally unsatisfactory. Incorrect symbols were used in many instances to produce the chart. Candidates clearly did not understand the relevance and use of flow lines or the need to use appropriate symbols to reflect the processes being carried out. Candidates should ensure correct use of symbols and clearly label flow lines for any decision symbol being used.

Pseudocode

The beginning and end of the solution should be clearly indicated, with the words START and STOP. The pseudocode should be structured with constructs clearly identified; the solution should not resemble Pascal code or slightly modified Pascal code.

The pseudocode solution should take the following format with variable definitions **preceding** the processing statements:



In order for full marks to be awarded for this section, the project should be substantive enough to include EACH of the following:

Prompting for input

Storing data (in variables and arrays)

Selection (If..then and If..then..else)

Repetition (*At least two of the following loops – For..do, While..do, Repeat..until with one being used in the manipulation of an array*)
Output.

Variable names used should be appropriate and meaningful.

Candidates should ensure that the layout of their work is adequately done. This means the beginning and ending of all program structures should be clearly seen, with appropriate indentation.

IF <condition> THEN
  <action (s)>
ELSE
  <action (s)>
ENDIF
	FOR <loop_variable = initial value> TO <end value> DO
	
	  <action (s)>
	
	ENDFOR

WHILE <condition> DO
  <action (s)>
ENDWHILE
	REPEAT
	  <action (s)>
	UNTIL <condition>

Trace Tables

The following points must be noted:

The variables in the trace table should match those identified in the pseudocode or the program.

Sample data used to test the solution should be robust. This means must test both valid and invalid data for key variables.

Changes in values in the table should be clearly represented.

Program Implementation

This section was generally well done. Approximately 90 per cent of the candidates attempted this component, with the majority obtaining at least half of the marks for this section.

To be awarded full marks for this section, candidates should ensure the following guidelines are adhered to:

> Evidence of a working program should be clearly seen through the use of screen shots showing output to convince the reader that the program has successfully compiled without any errors.
> Candidates should ensure that their solution employs a minimum of three different data types.
> Variables should be initialised appropriately in the program.

The project should be sufficiently substantive enough to demonstrate the use of:

Two different types of **selection** statements *(if..then, if..then..else)*
Two different types of **iteration** statements *with* ONE of the iteration statements **manipulating an array**.

Programs should be well documented: name of author, date created and a simple statement of the problem must be inserted. Process statements can also be documented. Candidates should pay close attention to layout, including proper indentation and white spacing.