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

CARIBBEAN SECONDARY EDUCATION CERTIFICATE®
EXAMINATION

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28 MAY 2019 (a.m.)

FILL IN ALL THE INFORMATION REQUESTED CLEARLY IN CAPITAL LETTERS.

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SUBJECT INFORMATION TECHNOLOGY – Paper 02

PROFICIENCY GENERAL

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SCHOOL/CENTRE NUMBER

NAME OF SCHOOL/CENTRE

CANDIDATE’S FULL NAME (FIRST, MIDDLE, LAST)

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DATE OF BIRTH

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FORM TP 2019085 MAY/JUNE 2019

CARIBBEAN EXAMINATIONS COUNCIL

CARIBBEAN SECONDARY EDUCATION CERTIFICATE® EXAMINATION

INFORMATION TECHNOLOGY

Paper 02 – General Proficiency

2 hours 15 minutes

READ THE FOLLOWING INSTRUCTIONS CAREFULLY.

1. This paper consists of THREE sections and a total of TWELVE questions. Candidates MUST answer ALL questions in all THREE sections.

2. Write your answers in the spaces provided in this booklet.

3. Do NOT write in the margins.

4. Code is to be written in Pascal.

5. If you need to rewrite any answer and there is not enough space to do so on the original page, you must use the extra lined page(s) provided at the back of this booklet. **Remember to draw a line through your original answer.**

6. **If you use the extra page(s) you MUST write the question number clearly in the box provided at the top of the extra page(s) and, where relevant, include the question part beside the answer.**

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SECTION I

THEORY – 60 marks

Answer ALL questions.

1. The OLDSCHOOL company collects old photographs of the city from its customers. The photographs are stored in filing cabinets and their images are also saved on a computer.

(a) Explain how the photographs and their images can be organized for easy retrieval.

.....

.....

.....

(2 marks)

(b) Identify ONE suitable device that could be used to organize the photographs, **and** state how the images of the photographs are created and transferred to the computer.

.....

.....

.....

.....

(2 marks)

(c) Consider EACH of the following terms:

Hard copy Soft copy Human readable Machine readable

Use **one** or **more** of the terms from the list above to indicate how the photographs are stored and accessed by EACH of the following methods.

Filing cabinets .....

.....

Stored on computers .....

.....

(4 marks)

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(d) For EACH of the following methods, state ONE measure that can be used to protect the photographs OR their images in the event of a fire.

Filing cabinets .....

.....

Stored on computers .....

.....

(2 marks)

Total 10 marks

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2. (a) Customers make payments for licensing their vehicles at one of ten cashier booths. Once the cashier enter the vehicle registration number and the amount paid in the computer system, a command is sent to print the road tax certificate. The certificate is printed in the order in which it was received in the printer queue.

(i) Identify the processing mode that is used for printing the road tax certificates **and** state ONE reason why this mode may have been used.

Mode .....

Reason .....

.....

(2 marks)

(ii) A road tax certificate is not printed if the customer has NOT paid the full amount due.

Identify ONE validation check and state how the system will use it to determine if a certificate should be printed.

.....

.....

.....

(2 marks)

(b) The following is a list of terms/abbreviations associated with the specifications for a computer system.

CPU	Monitor	Speaker
Operating system	Primary memory	Secondary storage device

(i) Select the appropriate term from the list above to match EACH of the following specifications.

Specification	Term Associated with Specification
Linux	
Intel® Core i3-6100U processor	
Quad-HD OLED (2560 × 1440) touchscreen display	

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4GB RAM	
500GB SATA Hard Drive 720 RPM	

(5 marks)

(ii) Identify ONE **other** device that would be necessary to include with the computer system.

.....

.....

(1 mark)

Total 10 marks

3. (a) (i) Complete the following table based on the number systems assigned.

	Character	**Number System #1**	**Number System #2**	**Number System #3**
	M	0100 1101		4D
Add two characters →	O		79	
Add one character →	P	0101 0000		

(5 marks)

(ii) Identify the types of number systems that were used in the table in (a) (i).

Number System #1	
Number System #2	
Number System #3	

(3 marks)

(b) State the name of the hardware component of a computer system that

(i) manipulates data .....

.....

(ii) temporarily stores data .....

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.....

(2 marks)

Total 10 marks

4. (a) State whether EACH of the storage devices listed in the following table are used for primary storage or secondary storage.

Device	Storage
Flash memory card	
Magnetic tape	
Random Access Memory	
Read Only Memory	
Bi-stable device	
Optical disk	

(6 marks)

(b) Match EACH of the following storage devices with the appropriate names from the list in (a).

Device	Name
	
	
	

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(4 marks)

Total 10 marks

5. For EACH of the following pairs of terms, describe ONE scenario where EACH term is more useful than the other.

(a) Networks: Local area or wide area

Local area .....

.....

Wide area .....

.....

(2 marks)

(b) Data transmission media: Coaxial cable or fibre-optic cable

Coaxial cable .....

.....

Fibre-optic cable .....

.....

(2 marks)

(c) Communication modes: Simplex or duplex

Simplex .....

.....

Duplex .....

.....

(2 marks)

(d) Wireless network technology: Bluetooth or Wi-Fi

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Bluetooth .....

.....

Wi-Fi .....

.....

(2 marks) (e) Wireless media: Satellite or microwave

Satellite .....

.....

Microwave .....

.....

(2 marks)

Total 10 marks

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6. (a) State ONE example of EACH of the following descriptions.

(i) An application that uses batch processing

.....

(1 mark)

(ii) An application that uses real-time processing

.....

(1 mark)

(iii) An operating system software for personal computers

.....

(1 mark)

(b) Outline the difference between an 'intranet' and an 'extranet'.

.....

.....

.....

.....

(2 marks)

(c) Identify the hardware device that performs EACH of the following tasks.

(i) Produces audio output from a computer

.....

(1 mark)

(ii) Stores program instructions during the execution of the program

.....

(1 mark)

(d) State the technical term used to describe EACH of the following activities.

(i) Studying for a degree via the Internet

.....

(1 mark)

(ii) Purchasing school supplies from Amazon via the Internet

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.....

(1 mark)

(iii) Sharing personal information on a website.

.....

(1 mark)

Total 10 marks

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SECTION II

PRODUCTIVITY TOOLS – 15 marks

Answer ALL questions.

7. Consider the following spreadsheet containing fields from the database table Learner-Driver below. Study the spreadsheet and answer the questions that follow.

	A	B	C	D	E	F	G
1	**Learner Driver**	**Permit Issue Date**	**Permit Expiration Date**	**Test Date**	**Status**	**Category**	**Instructor**
9	Ashton Nicholls	02/2/2018	02/8/2018		Active	Automatic	Jon
10	Asmara Royal	30/1/2018	30/7/2018		To start	Automatic	Jon
11	Chad Conway	19/8/2016	19/2/2018	05/5/2018	Active	Light Goods	Rick
12	Danielle Micah	02/11/2016	02/5/2018		Active	Automatic	Jon
13	Leroy Gaseth	30/1/2018	30/7/2018		Active	Automatic	Ash
14	Rashena Als	09/1/2018	09/7/2018		To start	Automatic	Ash
15	Regina Clariton	30/1/2018	30/7/2018		Active	Light Goods	Rick
16	Steve Colly	01/2/2018	01/8/2018		Active	Automatic	Jon
17	Shareece Sham	21/1/2018	31/7/2018		Active	Automatic	Ash

(a) Identify the field that could be used as a primary key, and state ONE reason why it may NOT be a suitable primary key.

.....

.....

.....

(2 marks)

(b) (i) One of the tables in the database is the Instructor table. Complete the table below to show the field name and the data types that could be used in the Instructor table.

Field Name	Data Type

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GO ON TO THE NEXT PAGE

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(2 marks)

(ii) Identify the field name from the Instructor table that would be MOST suitable as a primary key.

.....

(1 mark)

(c) Write the results of another query that lists the learner drivers assigned to Rick.

.....

.....

.....

.....

(2 marks)

Total 7 marks

8. The following spreadsheet shows some of the data generated from a list of students who have paid for lessons to learn to drive. Study the spreadsheet and answer the questions that follow.

	A	B	C	D	E	F	G
1	**Learner Driver**	**Permit Issue Date**	**Permit Expiration Date**	**Test Date**	**Status**	**Category**	**Instructor**
9	Ashton Nicholls	02/2/2018	02/8/2018		Active	Automatic	Jon
10	Asmara Royal	30/1/2018	30/7/2018		To start	Automatic	Jon
11	Chad Conway	19/8/2016	19/2/2018	05/5/2018	Active	Light Goods	Rick
12	Danielle Micah	02/11/2016	02/5/2018		Active	Automatic	Jon
13	Leroy Gaseth	30/1/2018	30/7/2018		Active	Automatic	Ash
14	Rashena Als	09/1/2018	09/7/2018		To start	Automatic	Ash
15	Regina Clariton	30/1/2018	30/7/2018		Active	Light Goods	Rick

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16	Steve Colly	01/2/2018	01//8/2018		Active	Automatic	Jon
17	Shareece Sham	21/1/2018	31/7/2018		Active	Automatic	Ash

(a) Using the letter 'm' to represent the month, 'd' to represent the day and 'y' to represent the year, write the format for the date that has been applied to the cells.

.....

(3 marks)

(b) Write a formula to calculate the number of days that Asmara Royal has had her permit.

.....

(2 marks)

(c) Explain why the data CANNOT be sorted by the learner's last name.

.....

.....

(2 marks)

(d) State the name of the feature that allows for the viewing of some rows of data in the spreadsheet.

.....

(1 mark)

Total 8 marks

SECTION III

PROBLEM-SOLVING AND PROGRAMMING – 45 marks

Answer ALL questions.

9. The following is a list of programming terms and errors.

indent	syntax	debug	
test	documented	logic	
run time	executed	source	High

Select the appropriate term/error from the list above to complete EACH of the following sentences.

(a) Annissa wrote code using Pascal, a …… -level language.

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(b) She typed the ……. code and then saved it.

(c) While she was typing the code, Annissa made sure to …….
certain lines so that the program was easy to read.

(d) There were no ……. errors, so the program followed the grammar of the language.

(e) She then ……. the program to see if it was grammatically correct.

(f) Annissa then entered some ……. data to see if the program produced the correct output.

(g) If there were errors, she would have to ……. the program to locate and correct these errors.

(h) The program produced the correct results and this meant there were no ……..…. errors or ……. errors.

(i) Since all was well, Annissa then ……. the program with comments.

(10 marks)

Total 10 marks

10. The following algorithm guides new students and continuing students about paying their school fees. Study the algorithm and answer the questions that follow.

Line Number	Statement
1.	IF You are a new student
2.	THEN Attend counselling
3.	IF You are ready to pay
4.	THEN Make payment
5.	ELSE Consider payment plan
6.	ELSE IF You are ready to pay
7.	THEN Make payment

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8.	ELSE Consider payment plan

(a) Suggest the appropriate action that should be taken by EACH of the following students.

(i) Millie, a new student, who is NOT yet ready to pay.

.....

.....

. .....

(ii) Roy, a continuing student, who is ready to pay.

.....

.....

. .....

(3 marks)

(b) State the MAIN difference between a new student and a continuing student.

.....

.....

(1 mark)

(c) Use the algorithm **on page 18** to complete (i–vi) in the following table. For EACH step

– write the line number of the statement if it is represented in the algorithm or 'none' if it is not represented

– draw a corresponding flowchart symbol.

Step	Line Number of Statement in the Algorithm	Flowchart Symbol
Input/output	(i)	

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Process	(ii)	(iv)
Decision	(iii)	(v)
Terminator	None	(vi)

(6 marks)

Total 10 marks

11. (a) Draw a flowchart to illustrate the following segment of the algorithm.

IF	You are ready to pay
THEN	Make payment
ELSE	Consider payment plan

(5 marks)

(b) The following algorithm guides new and continuing students about course registration. Study the algorithm and answer the questions that follow.

Line Number	Statement
1.	IF You are a new student
2.	THEN
3.	IF You are full-time
4.	THEN Register for five courses
5.	ELSE Register for three courses
6.	ELSE Check your credit hours

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(i) Using the algorithm, complete the table below to determine how students should register for courses.

Type of Student	**Registration**	**Option**
New student	Full-time	
New student	Part-time	
Continuing student	Full-time	
Continuing student	Part-time	

(4 marks)

(ii) State the name of the table above that showed the various options.

.....

(1 mark)

Total 10 marks

12. Students make a series of payments towards their school fees. The number of payments for each student is stored in a one-dimensional array shown below.

Num_of_payments	4	5	4			4	4	5	3	4	5			4
Reference	1	2	3	...	...	54	53	54	55	56	57	...	...	300

(a) State the

(i) reference for the student who has to make three payments

.....

(1 mark)

(ii) number of payments for the student with reference 56

.....

(1 mark)

(iii) maximum number of students whose information can be stored in the array

.....

(1 mark)

(iv) meaning of '...' as shown in the array

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.....

.....

(2 marks)

(v) data type for the number of payments.

.....

(1 mark)

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(b) Using the numbers 1, 2, 3 and 4, write the order in which the following sequence of statements are used in a Pascal programme.

Output data for a student	
Initialize the array	
Enter the number of payments for a student	
Declare the array	

(4 marks)

(c) Answer the questions based on the following fragment of Pascal code.

```
count :=0;
 For Reference :=1 to 300 DO
        If (PAYMENT[Reference] = 5) Then
        count := count + 1;
```

(i) State the purpose of count :=0;

.....

.....

(1 mark)

(ii) What does PAYMENT refer to in the fragment code above?

.....

.....

(1 mark)

(iii) State the purpose of the fragment code.

.....

.....

.....

(3 marks)

Total 15 marks

END OF TEST

IF YOU FINISH BEFORE TIME IS CALLED, CHECK YOUR WORK ON THIS TEST.

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CANDIDATE'S RECEIPT

INSTRUCTIONS TO CANDIDATE:

1. **Fill in all the information requested clearly in capital letters.**

TEST CODE: | 0 | 1 | 2 | 2 | 9 | 0 | 2 | 0 |

SUBJECT: INFORMATION TECHNOLOGY – Paper 02

PROFICIENCY: GENERAL

REGISTRATION NUMBER: | | | | | | | | | | |

FULL NAME: _____

(BLOCK LETTERS)

Signature: _____

Date: _____

2. **Ensure that this slip is detached by the Supervisor or Invigilator and given to you when you hand in this booklet.**

3. **Keep it in a safe place until you have received your results.**

INSTRUCTION TO SUPERVISOR/INVIGILATOR:

Sign the declaration below, detach this slip and hand it to the candidate as his/her receipt for this booklet collected by you.

I hereby acknowledge receipt of the candidate's booklet for the examination stated above.

Signature: _____
Supervisor/Invigilator

Date: _____