FORM TP 2021087

TEST CODE **01229020**

MAY/JUNE 2021

CARIBBEAN EXAMINATIONS COUNCIL

CARIBBEAN SECONDARY EDUCATION CERTIFICATE® EXAMINATION

INFORMATION TECHNOLOGY

Paper 02 – General Proficiency

2 hours

READ THE FOLLOWING INSTRUCTIONS CAREFULLY.

1. This paper consists of FOUR questions. Answer ALL questions.
2. Write your answers in the spaces provided in this booklet.
3. Do NOT write in the margins.
4. 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.**
5. **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.**

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO.

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Sequential Bar Code

Answer ALL questions.

1. (a) Define the term 'computer vulnerability'.

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(2 marks)

(b) Complete the table below by classifying EACH of the following vulnerabilities as an internal source or an external source.

Vulnerability	Source
Natural disasters such as floods, hurricanes and earthquakes.	
Employees erroneously erasing or overwriting data	
Lack of anti-virus software to scan email attachments	
Damage to hardware and software from electrical power surges and spikes	

(2 marks)

(c) Computer users can be the greatest threat to a company's computer security. State TWO examples of strategies used to mitigate threats from users.

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(2 marks)

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(d) Distinguish between the terms 'computer security' and 'cybersecurity'.

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(2 marks)

(e) Criminals acquire credit and debit card details from unsuspecting people and use this information to make fraudulent purchases and cash transactions.

(i) State the term used to describe the scenario above.

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(ii) Outline TWO appropriate methods which can be used to prevent the scenario above.

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(2 marks)

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(f) The following database table, CONTACTS, shows the records for several individuals registered at a university, including the code of the degree being pursued by each person.

CONTACTS

ID	FirstName	LastName	Birth date	Gender	Married	Phone	Degree
1	Roy	CLARKE	1/2/1997	M	Yes	688-4444	010
2	Jamila	ALI	3/22/1982	F	No	720-9123	020
3	Tyson	LENNY	3/23/1996	M	Yes	630-1234	040
4	Ikelia	DRAKES	7/4/1978	F	No	456-7890	050
5	Suresh	BAPTISTE	5/23/1999	M	No	456-6676	030
6	Janet	BROWN	6/18/2018	F	Yes	620-0190	050
7	Smith	JONES	12/20/2016	M	Yes	640-2823	020
8	Michael	JONES	6/18/2018	M	Yes	640-4929	080
10	Daniella	SINGH	6/18/2018	F	No	640-9989	090
11	Bridget	NICHOLAS	6/18/2018	F	No	637-4442	100
14	Brian	JOSEPH	3/3/2001	M	Yes	638-2223	020

(i) Describe the steps needed to manually add a new record to the existing database table, CONTACTS.

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(2 marks)

(ii) While adding a new record to a table, data is entered in a particular field and a dialogue window pops up indicating that the entered data is invalid. State the reason for the dialogue box popping up.

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(1 mark)

(iii) Outline how the error outlined in (f) (ii) could be fixed.

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(1 mark)

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(iv) The steps below (not in the correct order) are required to run a simple query on the CONTACTS table to extract all records, where the gender is male (M) and the degree code is 020.

Complete the following table by inserting the numbers 1–6 in the column labelled Step Number, to order the given steps.

Step	Step Number
Click Query Design.	
Set Criteria by clicking in the Criteria row of the field Gender and typing "M".	
From the Query Design View, select the CONTACTS table Click Add and click Close.	
Set Criteria by clicking in the Criteria row of the field Degree and typing "020".	
From the Create tab, locate the Queries group.	
Double-click the field names to be included in the query.	

(4 marks)

(v) Identify the records numbers that would be extracted from the table, CONTACTS, after running the query above.

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(2 marks)

Total 20 marks

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2. (a) Christopher is contemplating using cloud-based storage. To assist Christopher with his decision-making, complete Column 2 of the table below by stating true or false for each of the statements about cloud-based storage made in Column 1.

Statement	True/ False
Users can access their data whether they have access to the internet or not.	
Data is stored on multiple computers all over the world.	
Facebook, Twitter, Instagram and Gmail all use cloud-based storage.	
Users know exactly where their data is stored.	
The cloud is an unlimited and powerful remote network of interconnected computers.	
Cloud-based storage providers give free storage up to a certain limit.	

(4 marks)

(b) Outline the MAIN difference between 'systems software' and 'application software'.

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(2 marks)

(c) State ONE example of a hardware device with a user interface.

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(1 mark)

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(d) Four basic tasks are carried out by the hardware components of a computer system. State the name given to the sequence of events that represents these tasks.

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(1 mark)

(e) Classify EACH of the following data entry devices as either manual data entry or direct data entry.

Mouse .....

Optical character reader .....

Light pen .....

Sensor .....

(2 marks)

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(f) Using a word processor, a graphic artist designed the following flyer to email to potential clients. He/She also plans to distribute hard copies for advertisement purposes.

Townhouses FOR RENT

Fort George Hill Residences
St. James,
Antigua.

3 bedrooms, 1 bathroom, 1000 ft^2
$8000 EC per month
Semi-Furnished townhouses
Available from 1 March, 2020

Viewing Hours

Days	Times
Monday-Friday	9 am to 5 pm
Saturday	9 am to 5 pm

Private but centrally located, just a few minutes away from a shopping mall and public transportation. Enjoy the best of both worlds at Fort George Hill Residences —the beauty of nature and the culture of a vibrant suburban neighborhood

For more information, visit our website: www.fortgeorge.com
Real Estate Agent : 622-9090



(i) State the name of the feature used to create a connection between the flyer and the company's website.

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(1 mark)

(ii) The connection between the flyer and the company's website is to be tested before the flyer is distributed. State the reason for having to do this test.

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(1 mark)

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(iii) Identify TWO text formatting features used in the design of the first column of the flyer **on page 10**.

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(2 marks)

(iv) Identify TWO page formatting features used in the design of the flyer.

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(2 marks)

(v) The graphic artist would like to amend the Word document he created in order to produce a new flyer but would still keep a copy of the original document. Describe how he could create the updated document.

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(2 marks)

(vi) Name ONE word-processing feature that would allow you to protect your document while you are working on it and ONE feature that could protect the final document.

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(2 marks)

Total 20 marks

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3. Kimarki Care Home is an educational institution. Each year the curriculum is upgraded to ensure full spectrum coverage. This year the master timetable will be made available via the school's virtual learning platform and has to be arranged to include physical and virtual delivery modes, with tutors based locally and overseas.

(a) Identify the type of network that would be MOST suitable for ensuring connectivity between a physical computer in two different locations as well as the online classroom.

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(1 mark)

(b) Complete the following table by stating whether the listed transmission media items are wired or wireless.

	Transmission Media	Type of Media
(i)	Twisted pair	
(ii)	Infrared	
(iii)	Coaxial	
(iv)	Microwave	

(4 marks)

(c) The following spreadsheet is part of a master timetable issued for the institution for the September 2021 academic year.

	A	B	C	D	E	F
1	**Initial**	**Room code**	**Subject code**	**Days**	**Number of students**	**>30**
2	JD	01MT	Math103	Tues	45	
3	MM	06PH	Phy100	Mon	21	
4	JM	01PH	CS101	Mon	21	
5	MH	01PH	Chm111	Wed	20	
6	MD	01PH	Chm111	Tues	26	
7	KH	01MT	CS101	Tues	15	
8	RN	06PH	Math103	Fri	41	
9	SN	06PH	Math103	Tues	43	
10	VA	01MT	Phy100	Wed	16	
11	CR	01MT	Phy100	Tues	16	
12						
13	Total Students				264	
14	Average per class				26.4	

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(i) The administration of the institution would like to be able to easily view the days when most students are engaged. List the steps to be taken, in the correct order, to create a graphical representation of this information.

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(3 marks)

(ii) Using the spreadsheet **on page 12**, write the function or formulae to calculate the average number of students in a class.

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(3 marks)

(iii) Create the formula in Cell F2 to output "yes", if the class is over 30 students.

..... (..... ,"YES","NO")

(2 marks)

(iv) Identify the steps to be followed to copy the formula in Cell F2 to the range of cells from F3:F11.

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(2 marks)

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(d) Consider the following times table algorithm.

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START
        Set VALUE ← 7

                Write " NUMBER " , " PRODUCT "
                        FOR NUMBER ← 0 TO 12 DO
                                PRODUCT ← NUMBER * VALUE
                                Write "" , NUMBER , "" , PRODUCT
                        ENDFOR
STOP
```

(i) State the names of the variable(s) and constant(s).

Variable(s)

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Constant(s)

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(3 marks)

(ii) Name the type of construct that is being used.

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(1 mark)

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(e) Draw the flowchart symbol for EACH of the following statements

(i) FOR NUMBER ← 0 TO 12 DO

(ii) Write “” , NUMBER , “” , PRODUCT

(2 marks)

(f) Complete the following trace table for the algorithm **on page 14**.

Number	Value	Product
1	7	
2	7	
3	7	
4	7	

(4 marks)

Total 25 marks

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4. (a) The following fragment of code is part of a larger algorithm, written to calculate the average of TWO numbers.

Line Number

1. SELECTION1, SELECTION2: Integer;
2. AVERAGE: String ;
3. SELECTION1 := 0 ;
4. SELECTION2 := 0 ;
5.
6. AVERAGE := (SELECTION + SELECTION2) – 5 ;
7. input ('The average is', product) ;

(i) List FIVE errors that would prevent the proper execution of the algorithm above.

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(5 marks)

(ii) Write an algorithm that will find the average of THREE numbers.

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(10 marks)

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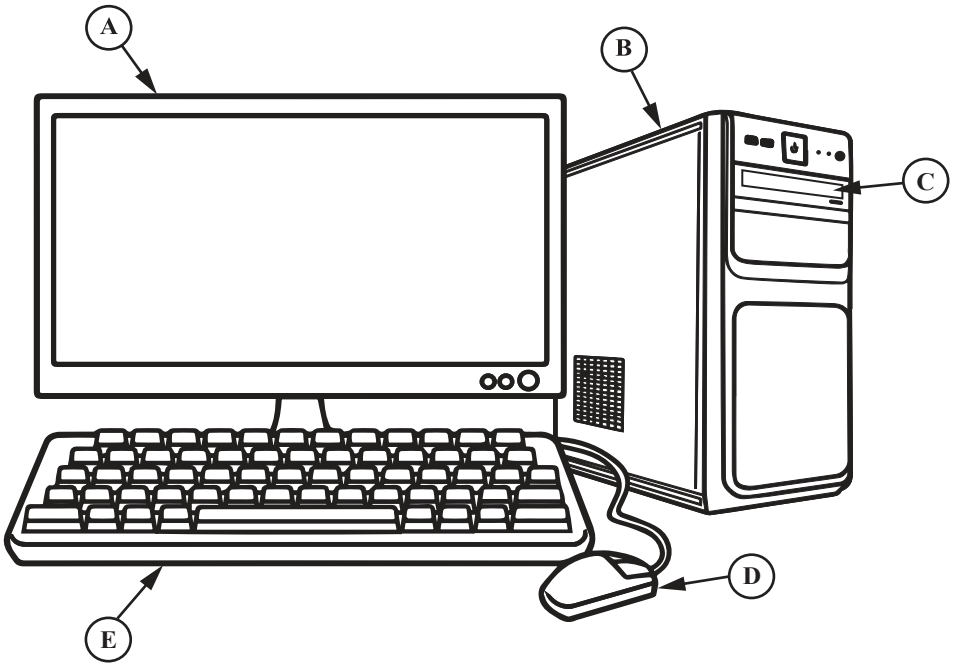
(b) At a data science laboratory, the data scientists and data engineers are required to process millions of data every second to predict weather patterns and abnormalities. This data is then sent to all employees over a network, using a server.

(i) State the type of computer system that is required for EACH of the following purposes.

- Processing of scientific data .....
- Distribution of data over a network .....
- Working from home .....

(3 marks)

(ii) Each employee is required to attend computer training twice a month to ensure that he/she understands the function of the computer as a processing tool.



Identify the function of EACH of the labelled components, A–E, as ONE of the following: input, systems unit, storage, output. EACH function may be used more than once.

A .....

B .....

C .....

D .....

E .....

(5 marks)

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(iii) State ONE device that may be found on a computer monitor that is used for video conferencing. Give ONE reason for your answer.

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(2 marks)

Total 25 marks

END OF TEST

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

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