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JANUARY 2024

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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Answer ALL questions.

1. Dom is starting a boating business as a digital company.

(a) Complete the table below by indicating whether the following devices, recommended to start Dom's business, are input or output.

Device	Input/Output
Plotter	.....
Keyboard	.....
Scanner	.....
Printer	.....
Microphone	.....

(5 marks)

(b) (i) List THREE types of networks.

.....

.....

.....

(3 marks)

(ii) Dom would like his network to be wireless.

Identify ONE critical hardware component that a device needs to access a wireless network and give a reason for the hardware component identified.

Component .....

.....

Reason .....

.....

(2 marks)

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(c) The following spreadsheet shows the initial stock for Dom's boating business.

	A	B	C	D	E	F
1	Stock ID	Item	Item Cost	No. in Stock	Total Value	No. on Order
2	FD012	Fender	400	568	227200	40
3	WD003	Winch	500	564		0
4	JD098	Jib	700	54		6
5	SD113	Spinnaker	1050	600		0
6	JDS054	Jet skis	10600	5		5
7	DD001	Dinghy	5000	9		8

(i) State the formula that would have been used in Cell E2.

.....

.....

(2 marks)

(ii) State the MOST appropriate cells in which EACH of the following functions could be placed.

- Average item cost

  .....

- Grand total

  .....

(2 marks)

(iii) Write an appropriate function to calculate the average item cost of the stock.

.....

.....

(2 marks)

(iv) Identify the MOST appropriate formatting style for the contents of the columns with the following headings.

Stock ID .....

Total Value .....

(2 marks)

GO ON TO THE NEXT PAGE

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(v) State the stock item of the **first** TWO rows when the spreadsheet is sorted in ascending order, based on the column heading Item.

.....

.....

(2 marks)

Total 20 marks

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2. (a) Use the appropriate **devices** from the list below to complete the table by matching the devices with their **uses**.

Sensor OCR MICR OMR Light pen

Devices	Uses
.....	Reads codes on a cheque
.....	Turns on the buzzer when someone approaches the door
.....	Marks multiple-choice responses
.....	Digitizes handwritten notes for editing

(4 marks)

(b) Complete the table below by indicating whether the tasks demonstrate the verification or validation of data **and** state the verification or validation method used.

	Task	Verification/ Validation	Method
(i)	Prompts the user to enter his/her password twice when creating an online account	.....	.....
(ii)	Ensures that the number of hours entered into a payroll system is greater than 0 but less than or equal to 40	.....	.....
(iii)	Ensures that the registration number of a vehicle, entered into a vehicle tracking system, is in the form of three letters of the alphabet followed by three or four digits	.....	.....

(6 marks)

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(c) A college has made it mandatory for all students to take a self-paced online course before they can graduate. Students can take the course anytime during their program of study.

Table 1 and Table 2 are extracts from a database which stores details of students who have enrolled in the course.

TABLE 1: STUDENT

RegNo	LastName	FirstName	Sex
1030968	Paul	Mary	F
1040276	Persaud	Alan	M
1070953	Eastmond	Alicia	F
1057680	Singh	Michael	M
1033000	Alphonso	Maria	F

TABLE 2: COMPLETION

DoC	YoS	RegNo	Specialization
2021-05-11	2nd	1057680	Business
2022-03-17	3rd	1040276	Technology
2021-09-12	4th	1030968	Science
2020-03-10	1st	1070953	Science
2021-09-24	2nd	1033000	Humanities

[DoC — Date of Completion; YoS — Year of Study]

(i) State the condition which allows any field in a database to be declared a Boolean data type.

.....

(1 mark)

(ii) Identify the field from the STUDENT table that can be used as the primary key **and** state the reason.

Primary key .....

Reason .....

.....

(2 marks)

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(iii) State the RegNo of the student who will be **second** in the sorted list, if the COMPLETION table is sorted in ascending order by the Specialization field.

.....

(1 mark)

(iv) Table 1 and Table 2 are linked. State the

- MOST appropriate field used to link the tables.

.....

- LastName of the student who completed the online course in the **first** year.

.....

(2 marks)

(v) The following query was performed on the database.

Field:	**RegNo**	**FirstName**	**LastName**	**Sex**	**Specialization**
Table:	**STUDENT**	**STUDENT**	**STUDENT**	**STUDENT**	**COMPLETION**
Sort:					
Show:	√	√	√	√	√
Criteria:				**"M"**	**"Science"**

a) Identify the number of fields that will be displayed when the query is executed.

.....

(1 mark)

b) Identify the number of records that will be displayed when the query is executed.

.....

(1 mark)

(vi) A report was created from the two linked tables. State TWO fields which could be used to group the data in the report.

.....

(2 marks)

Total 20 marks

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3. (a) The following is a list of specifications for a laptop that was bought by Jane.

Intel core i5, 2.9GHz
14" Touchscreen
8 GB DDR4
512 GB SSD
1 HDMI Port; 1 Ethernet port; 2 USB 3.0 ports
Intel Wi-Fi card
Integrated webcam
Adobe Acrobat DC reader
Windows 11 pro (preloaded)
Google Chrome
MS Office 2021 LTSC (preloaded)

Identify EACH of the following in the laptop specifications.

(i) Secondary storage

.....

(1 mark)

(ii) Processor speed

.....

(1 mark)

(iii) Web browser

.....

(1 mark)

(iv) Monitor

.....

(1 mark)

(v) The component used for connecting to the school's Internet hotspot

.....

(1 mark)

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(b) The major exports of a country for three years are given in the worksheet below.

	A	B	C	D	E	F	G
1							
2	**Exports of Major Products (US$ Millions)**						
3	**Product**	**2020**	**2021**	**2022**	**Total**	**% of Total Exports**	**Performance**
4	Sugar	28	20	24	72	1.72%	POOR
5	Wood products	35	45	25	105	2.51%	POOR
6	Alcoholic products	75	40	35	150	3.58%	POOR
7	Fish products	98	76	50	224	5.35%	POOR
8	Bauxite	130	125	74	329	7.85%	GOOD
9	Rice	190	225	245	660	15.75%	GOOD
10	Gold	780	880	990	2650	63.25%	GOOD
11	**Total**	**1,336**	**1,411**	**1,443**	**4,190**		

(i) State the formatting feature applied to Row 2.

.....

(1 mark)

(ii) State the type of cell referencing used if the formula **E4/E11** was inserted in Cell F4.

.....

(1 mark)

(iii) Identify the product that would be in the **fifth** position in the sorted list if the data in the worksheet was sorted by the total column (total for three years) in **descending** order.

.....

(1 mark)

(iv) Write the function you would use in Cell G8 to insert "GOOD" if the total exports for the three years is more than US$300 million or "POOR" if it is less than US$300 million.

.....

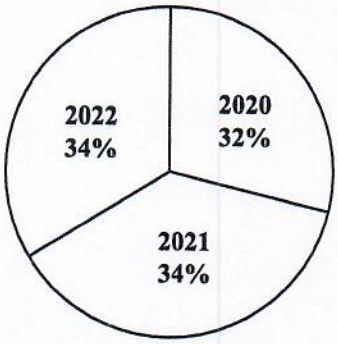
.....

(2 marks)

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The following chart was created from the data in the worksheet.

Exports: 2020–2022



(v) State the type of chart shown.

.....

(1 mark)

(vi) State the data range used to construct the chart.

.....

(2 marks)

(vii) State the TWO data label formats which have been applied to the chart.

.....

(2 marks)

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(c) Consider the following algorithm used to compute the monthly income tax to be paid by an individual. The line numbers are for reference only.

```
Line 1.   START
Line 2.       Set TAX ⟵ 0
Line 3.       Write 'monthly pay $75,000 or less pays no tax'
Line 4.       Write 'Enter your monthly pay'
Line 5.       Read mthpay
Line 6.       If (mthpay > 75000) AND (mthpay <= 200000) then
Line 7.           TAX ⟵ (mthpay − 75000) * 0.20
Line 8.       Else
Line 9.           TAX ⟵ (mthpay −(0.25 * mthpay))* 0.40
Line 10.      Endif
Line 11.          Write 'TAX :' , TAX
Line 12.  STOP
```

(i) State the variable used that is of data type real.

.....

(1 mark)

(ii) Name the type of construct used.

.....

(1 mark)

(iii) State the line number where a relational operator is used.

.....

(1 mark)

(iv) State the logical operator used.

.....

(1 mark)

(v) Complete the following table by inserting the tax to be paid by John and Mary.

Name	mthpay	TAX
John	$175 000	.....
Mary	$400 000	.....

(2 marks)

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(vi) Draw a flowchart to represent the construct used in the algorithm.

(4 marks)

Total 25 marks

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4. Study the following pseudocode written for an algorithm. The line numbers are for reference only.

```
Line 1.   START
Line 2.       Set Temp ⟵ 0
Line 3.       Set Cel ⟵ 0
Line 4.       Set Fah ⟵ 0

Line 5.       Write "Enter 1 for Fahrenheit to Celsius OR Enter 2 for Celsius to Fahrenheit"
Line 6.           Read Temp
Line 7.           Write Temp

Line 8.       IF Temp=1
Line 9.       THEN
Line 10.          Write "Enter Degrees Fahrenheit"
Line 11.          Read Fah
Line 12.          Set Cel ⟵ (Fah – 32) * 5/9
Line 13.          Write Fah, "degrees Fahrenheit is", Cel, "degrees Celsius"
Line 14.      ELSE
Line 15.          Write "Enter Degrees Celsius"
Line 16.          Read Cel
Line 17.          Set Fah ⟵ (Cel * 9/5) + 32
Line 18.          Write Cel, "degrees Celsius is", Fah, "degrees Fahrenheit"
Line 19.      ENDIF
Line 20.  STOP
```

(a) State exactly what the algorithm does.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

(4 marks)

DO NOT WRITE IN THIS MARGIN

(b) Complete the input processing output (IPO) chart below for the pseudocode from (a) **on page 16.**

Input	Processing	Output
.....	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	.....

(4 marks)

(c) The pseudocode for the algorithm **on page 16** is to be amended to use a FOR loop construct, enabling the algorithm to do exactly ten calculations before it terminates.

(i) Using a new variable "number" as the loop counter, write the TWO pseudocode statements needed to achieve this.

.....

.....

.....

(2 marks)

(ii) State ONE reason why the FOR loop is the **most** appropriate loop construct to use in this scenario.

.....

.....

(1 mark)

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(d) Using the variable "number" as the loop counter, write the FOUR pseudocode statements for a REPEAT… UNTIL loop construct, to enable the algorithm to do exactly ten calculations before it terminates.

.....

.....

.....

.....

.....

.....

(4 marks)

(e) Jane wants to establish a wired network with desktop computers spread across all floors of the office building. List FOUR hardware devices that Jane will need to accomplish this task.

.....

.....

.....

.....

.....

.....

(4 marks)

(f) Distinguish between the terms, the 'Internet' and the 'World Wide Web (WWW)'.

.....

.....

.....

(2 marks)

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(g) (i) State what the acronym URL represents.

.....

(1 mark)

(ii) Consider the URL https://cxc.org/student-results. Complete the table below by giving a description of the three parts of the URL.

Parts of URL	Description
https:	.....
//cxc.org	.....
/student-results	.....

(3 marks)

Total 25 marks

END OF TEST

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

EXTRA SPACE

If you use this extra page, you MUST write the question number clearly in the box provided.

Question No. ☐

DO NOT WRITE IN THIS AREA. THIS AREA WILL NOT BE MARKED.