CARIBBEAN EXAMINATIONS COUNCIL

CARIBBEAN SECONDARY EDUCATION CERTIFICATE® EXAMINATION

29 MAY 2018 (a.m.)

M1801229020

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SUBJECT INFORMATION TECHNOLOGY – Paper 02

PROFICIENCY GENERAL

REGISTRATION NUMBER | | | | | | | | | | |

SCHOOL/CENTRE NUMBER					

NAME OF SCHOOL/CENTRE

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

DATE OF BIRTH | D | D | M | M | Y | Y | Y | Y |

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MAY/JUNE 2018

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.**

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

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SECTION I

THEORY – 60 marks

Answer ALL questions.

1. Akia regularly needs to access many documents that are sent to her. She uses one or more applications to receive and send notes and information to her colleagues. Sometimes she needs to access her company's website for information when working with a client.

(a) Based on the scenario above, identify TWO examples of software applications that Akia would use.

.....

.....

.....

(2 marks)

(b) Define the term 'telecommunication'.

.....

.....

.....

.....

(2 marks)

(c) Complete the following table by writing ONE advantage and ONE disadvantage of using (i) a laptop computer and (ii) a mobile device for conducting business while travelling.

	Advantage	**Disadvantage**
(i) Laptop computer		
(ii) Mobile device		

(4 marks)

GO ON TO THE NEXT PAGE

(d) Akia needs to print a document that is located on a mobile device. Outline TWO ways in which the document can be printed.

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(2 marks)

Total 10 marks

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2. (a) State TWO examples of a hardware interface.

.....

.....

.....

(2 marks)

(b) The following list includes various specifications of computer devices.

Specifications:

Display size	Hard drive size
Memory size	Processor speed
Resolution	

For EACH of the following scenarios, (i) to (iv), recommend TWO relevant computer specifications from the list above. Specifications can be used more than once.

Scenario	Computer Specifications
(i) Mia needs to see the fine details of the graphics on the screen.	
(ii) Joe's computer performs highly complex calculations and quickly produces results.	
(iii) A presentation needs to be seen by viewers from a distance.	
(iv) Shirley stores and retrieves data for her 2000 clients, and needs to add client information for the remaining 5000.	

(8 marks)

Total 10 marks

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3. (a) The table below illustrates sources that are used for the input of data. For EACH source, identify the device that is used to capture data from it, and describe ONE example of data that is captured.

	Illustration of Source	Device Used	Example of Data that is Captured
(i)			
(ii)			
(iii)			

(6 marks)

(b) State, with reasons, which of the sources illustrated

(i) is the LEAST popular

.....

.....

.....

(2 marks)

(ii) is MOSTLY associated with point-of-sale systems.

.....

.....

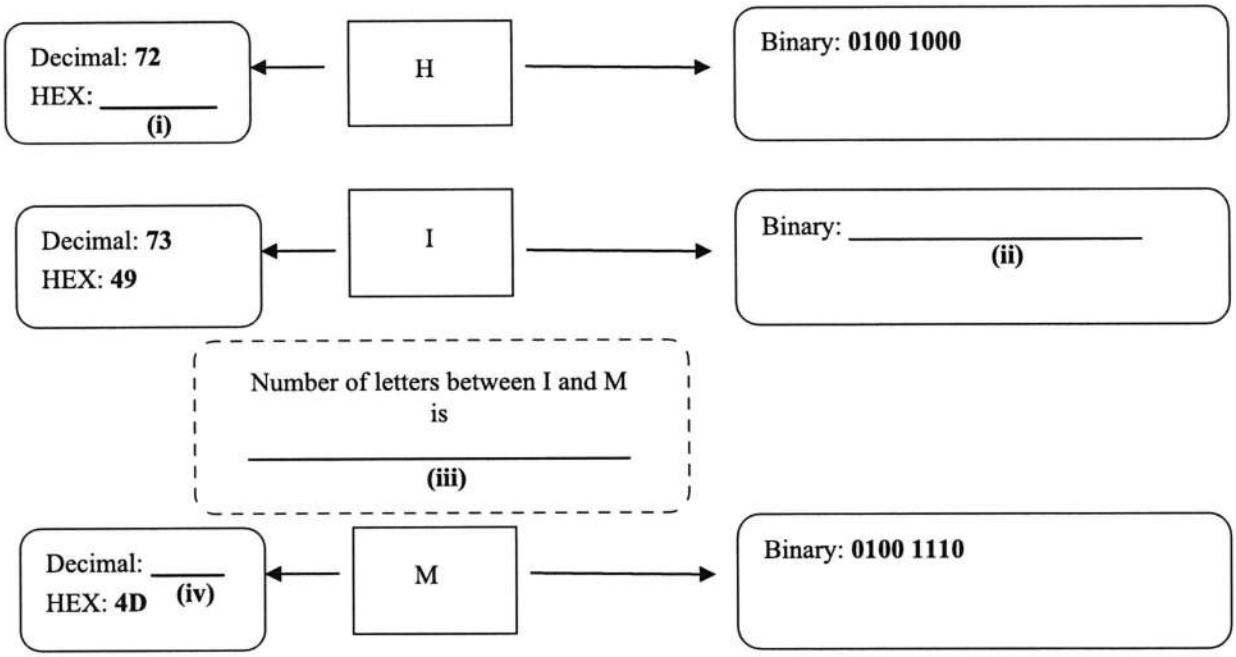
.....

(2 marks)

Total 10 marks

GO ON TO THE NEXT PAGE

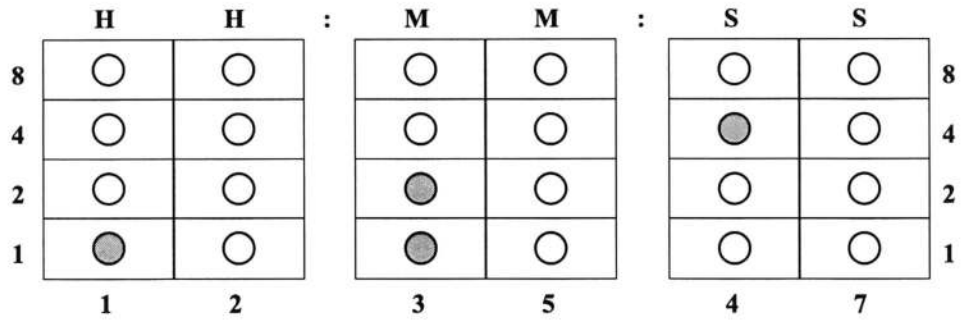
4. (a) The diagram below shows the decimal binary or hexadecimal representation of the characters H, I, M. Complete the diagram by writing the correct representation in the spaces (i), (ii), (iii) and (iv).



(4 marks)

(b) Daniel wants to represent 12:35:47 p.m. using a clock, where each column shows the binary-coded decimal number.

In EACH of the three unshaded columns below, shade the appropriate circles that correspond to the decimal digit, indicated below it. Three columns have been completed for you.



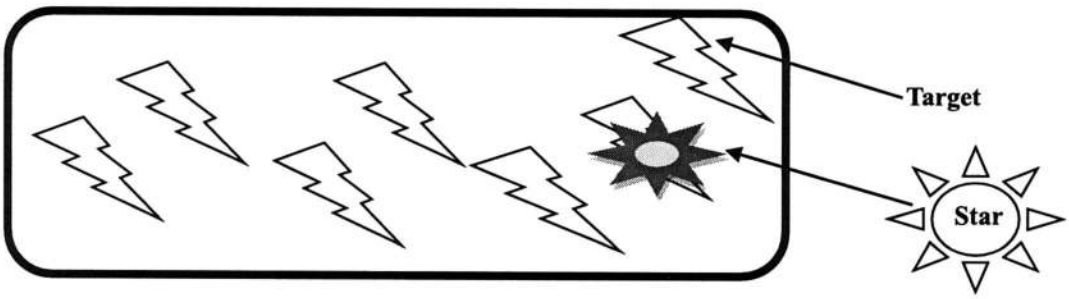
(6 marks)

Total 10 marks

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5. Jarad is playing an online game where the user needs to move the STAR over different TARGETS in order to gain points. Use this gaming example to answer the questions that follow.



(a) State

(i) TWO examples of input devices that can be used to move the **star** to the **target**.

.....

.....

(2 marks)

(ii) ONE output device AND ONE hardware interface that notifies the user that the **star** is over the **target**.

.....

.....

(2 marks)

(b) Describe TWO ways in which the gaming application can indicate to Jarad that the **star** is over the **target**.

.....

.....

.....

.....

(2 marks)

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(c) Complete EACH of the following statements by writing in the MOST suitable expression associated with the term in brackets.

(i) Jarad is able to play the game interactively with other users in different countries in ..... (Processing mode)

(ii) He is also able to talk with the other users over the Internet while playing the game using ..... (Internet protocol).

(iii) Since he has so many games on the computer, he should ..... his files to safeguard them in the event his computer and data are corrupted. (Data security)

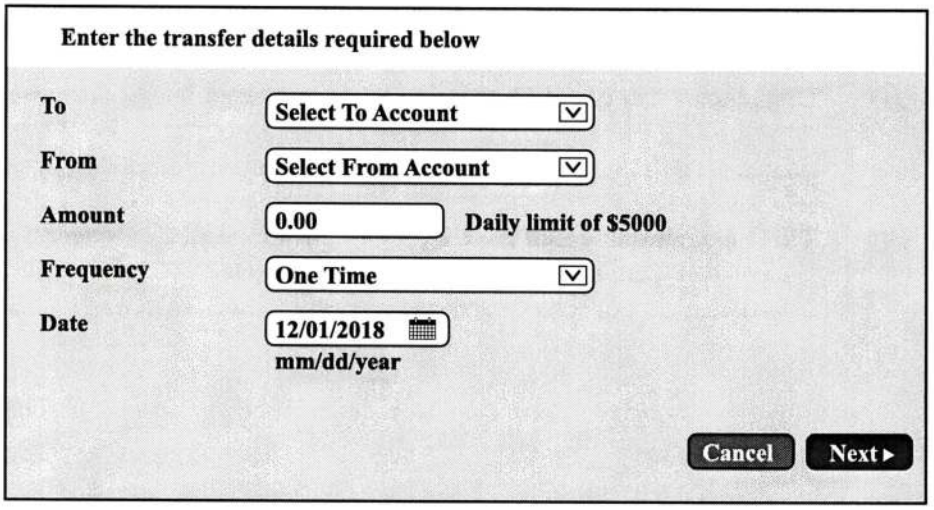
(iv) Sometimes he can play his game using ..... where he does not use cables to connect to the Internet. (Wireless network)

(4 marks)

Total 10 marks

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6. An online banking website shows the following screen to transfer money from one account to another.



(a) Complete the table below by stating the fields for which the following validation checks can be used. Give ONE reason why **each** check is suitable for the fields stated.

Check	Field(s)	Reason
Data type		
Consistency		
Range		

(7 marks)

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(b) A customer is transferring $2500 from one account to another on Thursday, 4 January 2018. After clicking the next button, an error message is shown.

State

(i) ONE factor that could have led to an error caused by the customer

.....

(ii) TWO factors that could have led to an error caused by the technology.

.....

(3 marks)

Total 10 marks

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SECTION II

PRODUCTIVITY TOOLS – 15 marks

Answer ALL questions.

7. Study the spreadsheet below and answer the questions that follow.

	A	B	C	D	E
1					
2	**Passenger**	**Number of Trips**	**Accompanying Family Members**	**Pieces of Luggage**	**Luggage Charge**
3	Parris	12	0	1	
4	Moore	4	1	2	
5	Greene	2	2	3	
6	Sweeny	9	1	2	
7	Walrond	1	1	2	
8					
9			FUNC-X	10	
10			FUNC-Y	2.0	

(a) State the names of the functions that produced the results in cells D9 and D10.

FUNC-X .....

FUNC-Y .....

(2 marks)

(b) Write a function for cell E5 that would place the comment "Yes" in that cell, if a passenger has more than TWO pieces of luggage.

.....

.....

(3 marks)

(c) State the range of cells that would be selected to create a chart that compares the number of trips AND pieces of luggage for each passenger.

.....

.....

(2 marks)

Total 7 marks

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8. Study the following table which contains the schedules for four flights.

SCHEDULES

FLIGHT	DEPARTURE	ON TIME
BEL111	6:50 a.m.	Yes
CBB123	8:25 a.m.	No
BBA556	4:30 p.m.	Yes
NAB900	5:00 p.m.	Yes

(a) Complete the database structure for the table.

Field Name	Data Type
FLIGHT	
DEPARTURE	
ON TIME	

(3 marks)

(b) State the field that can be used as a primary key.

.....

(1 mark)

(c) Write a suitable size for the FLIGHT field.

.....

(1 mark)

(d) Write the result of a query that finds all flights that are delayed.

.....

(1 mark)

(e) State the field name AND the order of the records which are sorted in the table.

.....

.....

(2 marks)

Total 8 marks

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SECTION III

PROBLEM-SOLVING AND PROGRAMMING – 45 marks

Answer ALL questions.

9. Aaron is playing a new online car game. He can gain or lose points in the game as follows:

- **Increase** speed and gain 20 points.
- Get **stopped** by a police officer and lose 10 points.
- **Gain** distance on another vehicle and gain 10 points.
- **Crash** and lose all points.

For no change in points, however, the car can do the following:

- **Turn** in the opposite direction.
- **Knock** a sidewalk.

(a) Complete the following table to show Aaron's updated points while completing the moves indicated.

Move	Aaron's Car	Updated Number of Points
		0
1	Gains distance	
2	Knocks a sidewalk and gets stopped	
3	Gains distance and gets stopped	
4	Turns and crashes	
5	Gains distance and increases speed	
6	Is stopped and knocks a sidewalk	

(6 marks)

(b) Using pseudocode, write an IF statement for Move 1 (Gains distance) in (a) that updates the number of points.

.....

.....

.....

.....

(4 marks)

Total 10 marks

10. The following table shows two translations of a set of programming instructions.

Study the table and answer the questions that follow.

Instruction	Translation 1	Translation 2
JUMP	JMP	1001
TAP	TAP	1010
TURN	TRN	1111
FALL	FAL	0000
KNOCK	KNK	10100
SEIZE	SZE	1110

(a) State the programming language **generation** used in Translation 1.

.....

(1 mark)

(b) Write the generic name of the programming language illustrated in

(i) Translation 1 .....

(ii) Translation 2 .....

(2 marks)

(c) (i) Identify the error in the following instructions: SZE TAP JNP TRN.

.....

(1 mark)

(ii) State the technical term for the type of error identified in (c) (i).

.....

(1 mark)

(iii) Correct the error by stating what the **instruction** should be.

.....

(1 mark)

(iv) State the technical term for locating this type of error in a program.

.....

(1 mark)

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(d) The following table shows a set of instructions and the output after being translated.

Instructions (from Program)	Output (of Program)
FAL JMP KNK SZS	0000 1111 10100 1110

State

(i) the general name given to the original set of code before the translation

.....

(1 mark)

(ii) the term given to the translation that produced the output of the program

.....

(1 mark)

(iii) the name of a programming language that has user-friendly programming instructions.

.....

(1 mark)

Total 10 marks

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11. (a) State whether EACH of the following operations is described as input, output, processing or storage.

(i) Entering a player's name in a competition

.....

(ii) Showing the number of points on a screen

.....

(iii) Calculating the number of points lost in a game

.....

(iv) Exiting a game

.....

(v) Saving the points for the last three games

.....

(5 marks)

GO ON TO THE NEXT PAGE

(b) Sketch a flow chart for the following control structure.

```
While Points >= 20
        level = level + 1
Output "You need 20 or more points"
```

(5 marks)

Total 10 marks

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12. Study the following outline of an office where a thick line denotes a wall and the numbers represent blocks.

11	12	13
21	22	23
31	32	33
41	42	43

(a) Using the terms START, DOWN, UP, LEFT, RIGHT and STOP, write the sequence of steps required to walk from Block 11 to Block 13.

.....

.....

.....

(5 marks)

(b) Using the following algorithm, write a complete Pascal program named MAZE.

```
Step = 0
Turn = 0
AtWall = False
While AtExit is not equal to True
        Step = Step + 1
        If (AtWall = True)
        Then Turn = Turn + 1
        Else Step = Step + 1
        If AtExit = True
        Then Output number of steps, number of turns
EndWhile
Stop
```

(10 marks)

Total 15 marks

END OF TEST

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

DO NOT REMOVE THIS ANSWER BOOKLET FROM THE EXAMINATION ROOM

EXTRA SPACE

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

Question No. [ ]

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

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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: _____



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