

FORM TP 2013087



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MAY/JUNE 2013

CARIBBEAN EXAMINATIONS COUNCIL

CARIBBEAN SECONDARY EDUCATION CERTIFICATE®
EXAMINATION

INFORMATION TECHNOLOGY

Paper 02 – General Proficiency

2 hours 15 minutes

16 MAY 2013 (a.m.)

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. Number EACH answer correctly in the answer booklet.
3. Code is to be written in the programming language, Pascal.

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SECTION I

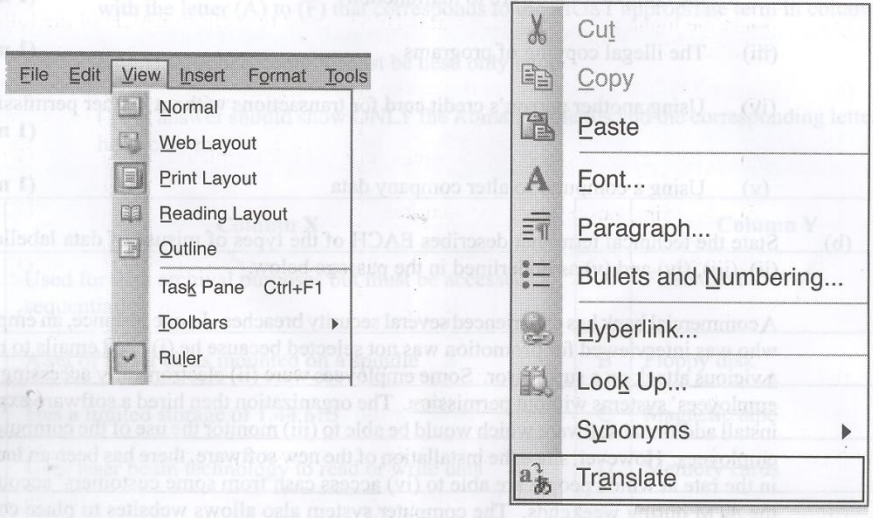
THEORY – 60 marks

Answer ALL questions.

1. (a) Name the input or output device that is BEST suited to perform EACH of the following activities:
- (i) Viewing images from one computer to another over the Internet (1 mark)
 - (ii) Producing architectural drawings such as building plans (1 mark)
 - (iii) Playing games using the computer (1 mark)
 - (iv) Retrieving information electronically from a code on a product (1 mark)
 - (v) Identifying users by scanning their fingerprints (1 mark)
- (b) Kim wants to purchase a printer. State TWO characteristics of printers that Kim should consider when purchasing the printer. (2 marks)
- (c) State the general name associated with devices such as a printer. (1 mark)
- (d) Explain what is meant by a 'bistable' device. (2 marks)

Total 10 marks

2. (a) (i) Name TWO types of user interface. (2 marks)
- (ii) State an appropriate input device for EACH interface named in (a) (i) above. (2 marks)
- (b) Name the type of menu illustrated in Menu A and Menu B below.



Menu A

Menu B

(2 marks)

- (c) (i) Name ONE operating system. (1 mark)
- (ii) Explain ONE function of an operating system. (3 marks)

Total 10 marks

3. (a) State the computer term that is described in EACH of the following statements:
- (i) Secret information is obtained by spying on competitors or opponents **(1 mark)**
 - (ii) A malicious program that is designed to corrupt files on a computer or to cause the computer hardware to malfunction **(1 mark)**
 - (iii) The illegal copying of programs **(1 mark)**
 - (iv) Using another person's credit card for transactions without his/her permission **(1 mark)**
 - (v) Using a computer to alter company data **(1 mark)**
- (b) State the technical term that describes EACH of the types of misuse of data labelled (i), (ii), (iii), (iv) and (v) as underlined in the passage below.

A commercial bank has experienced several security breaches. In one instance, an employee who was interviewed for promotion was not selected because he (i) used emails to mount a vicious attack on a supervisor. Some employees were (ii) electronically accessing other employees' systems without permission. The organization then hired a software expert to install additional software which would be able to (iii) monitor the use of the computers by employees. However, since the installation of the new software, there has been an increase in the rate at which people are able to (iv) access cash from some customers' accounts at the ATM during weekends. The computer system also allows websites to place cookies on the company's computers to (v) collect personal information on certain employees.

(5 marks)

Total 10 marks

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4. (a) State TWO differences between RAM and ROM. **(2 marks)**
- (b) Give TWO reasons why it is necessary for computers to have secondary storage. **(2 marks)**
- (c) Write the numbers (I) to (VI) in your answer booklet. Match EACH term in column X with the letter (A) to (F) that corresponds to the MOST appropriate term in column Y. EACH term in column Y must be used only once. (Your answer should show ONLY the Roman numerals and the corresponding letters you have chosen.)

	Column X		Column Y
I	Used for data archival purposes but must be accessed sequentially	A	Flash drive
II	A set of metal disks mounted on a spindle	B	Floppy disk
III	Has a limited storage of 1.44 MB	C	Magnetic tape
IV	Uses laser beam technology to read or write data	D	Memory cards
V	Comes in various shapes and sizes	E	Hard disk
VI	Used in digital cameras, photo printers and cell phones	F	Digital Versatile Disk (DVD)

(6 mark)

Total 10 marks

5. The OnlyInsure Insurance Company has one computer that stores all company data. The company handles a large amount of confidential client data and needs to ensure its accuracy.

- (a) The company has been asked to use encryption.
 - (i) State the purpose of encryption. (1 mark)
 - (ii) Suggest the type of data that the company may want to encrypt. (1 mark)
- (b) Suggest TWO security measures that can be used to prevent an agent from viewing another agent's confidential files. (2 marks)
- (c) State TWO precautionary measures that can be taken to protect the client data in case of a fire. (2 marks)
- (d) Explain TWO validation checks that the company can carry out while entering data in the computer. (4 marks)

Total 10 marks

6. (a) What is the hexadecimal equivalent for the decimal number 21? [Working must be shown.] (2 marks)
- (b) The ASCII representation for the letter 'D' is 1000100. What is the ASCII representation for the letter 'G'? [Working must be shown.] (4 marks)
- (c) What does the acronym BCD stand for? (3 marks)
- (d) State how many bits are represented by one digit using BCD representation. (1 mark)

Total 10 marks

SECTION II

PRODUCTIVITY TOOLS – 15 marks

Answer ALL questions.

7. The spreadsheet below shows the performance of 30 students from a particular high school in CSEC examinations.

	A	B	C	D	E	F	G	H
1	Number of Students	30						
2		PASS			FAIL			
3	SUBJECTS	I	II	III	IV	V		
4	Chemistry	12	8	7	2	1		
5	Biology	9	16	4	0	1		
6	Physics	20	5	3	2	0		
7								

- (a) State the number of rows that are illustrated in the spreadsheet. **(1 mark)**
- (b) (i) Write the formula used to calculate the total number of students who passed Chemistry. **(4 marks)**
(ii) If range A4 to F6 was sorted in ASCENDING order by subject, state the cell location of Biology **after the sort**. **(1 mark)**
- (c) State the name of the function that should be used to find the
 - (i) number of subjects listed in the spreadsheet **(1 mark)**
 - (ii) LEAST number of passes with Grade I. **(1 mark)**

Total 8 marks

8. The following is a list of customers, money owed and phone numbers.

Jimmy Smith	\$355.98	654-2586
Daniel Maharaj	\$564.76	653-8652
Gemma Gordon	\$456.23	658-8693
Sarah Daniels	\$ 35.89	659-5781

(a) Copy and complete the following database structure to store this data in the format given.

Field Name	Data Type	Field Description

(3 marks)

(b) State a field name from the list you have provided in (a) above that can be used as a primary key. (1 mark)

(c) Write the criteria to search the database table for all the persons who owe more than \$500.00. (2 marks)

(d) State the feature of a database management system that prints data in a specified format with a title. (1 mark)

Total 7 marks

SECTION III

PROBLEM SOLVING AND PROGRAMMING – 45 marks

Answer ALL questions.

9. (a) Draw a flow chart to illustrate the following fragment of code:

```
IF P > Q  
THEN PA = P - Q  
ELSE QA = Q - P
```

(7 marks)

- (b) Copy and complete the following table using the code in (a) above.

P	Q	P > Q? (Y or N)	PA	QA
1	1			
1	0			
0	1			
0	0			

(8 marks)

Total 15 marks

END OF TEST

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

10. Aliyah wrote the following program.

```
1 Program lesser;
2 Var X, Y: integer;
3
4 Begin
5
6   readln(X, Y);
7   If X < Y
8     Then Writeln ('X is the smaller number')
9     Else Writeln ('Y is the smaller number');
10  End.
```

(a) Aliyah executed the program and input the number 4 for both X and Y.

- (i) State the output from the program. **(2 marks)**
- (ii) State the line number that produced the output statement in (a) (i) above. **(1 mark)**
- (iii) The output suggests an error exists. State the name of the type of error. **(1 mark)**
- (iv) State the line number in which the error exists and rewrite the program code that would correct the error. **(2 marks)**
- (v) State the type of structure that is used in lines 7 to 9. **(1 mark)**

(b) Aliyah wants to modify the program.

- (i) Write a statement to initialize the variable X to zero. **(2 marks)**
- (ii) State the line number in which the statement in (b) (i) above could be appropriately inserted. **(1 mark)**

Total 10 marks

11. Consider the following array named LIST.

R	U	T	H	E	R
1	2	3	4	5	6

Rewrite the Pascal statement given below to declare an array called LIST. Replace the letters (A), (B) and (C) with the appropriate term or value.

VAR _____(A)_____ : ARRAY [_____(B)_____] of _____(C)_____ ;

Total 5 marks

12. Write program statements in PASCAL to do the following:

- (a) Write a program header with the name of the program as TOTAL. **(3 marks)**
- (b) Declare a variable named SUM to store whole numbers. **(4 marks)**
- (c) Initialize the variable SUM to give it the value, zero. **(4 marks)**
- (d) Print the value stored in the variable SUM. Ensure that the cursor is placed on the next line. **(4 marks)**

Total 15 marks

END OF TEST

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