TEST CODE **01529010**

FORM TP 2009082

MAY/JUNE 2009

CARIBBEAN EXAMINATIONS COUNCIL

SECONDARY EDUCATION CERTIFICATE EXAMINATION

INFORMATION TECHNOLOGY

Paper 01 – General and Technical Proficiencies

THEORY

1$\frac{1}{2}$ hours

01 JUNE 2009 (p.m.)

INSTRUCTIONS TO CANDIDATES

1. **This paper has four sections.**

   SECTIONS I AND II ARE TO BE DONE BY *ALL* CANDIDATES.

   ***TECHNICAL PROFICIENCY* CANDIDATES MUST DO SECTIONS I, II, AND III.**

   ***GENERAL PROFICIENCY* CANDIDATES MUST DO SECTIONS I, II, AND IV.**

2. **Number EACH answer correctly in the answer booklet.**

3. **You may write Basic or Pascal (or any other language) code in those questions requiring pseudocode/algorithm.**

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

Copyright © 2008 Caribbean Examinations Council ®.
All rights reserved.

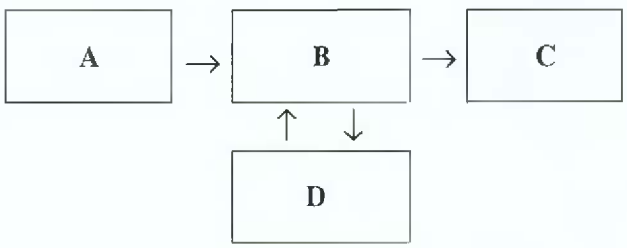
SECTIONS I and II

TECHNICAL AND GENERAL PROFICIENCIES

ANSWER ALL QUESTIONS.

SECTION I – 30 marks

1. (a) Write the labels A, B, C, and D on separate lines, one below the other, in your answer booklet. Then write the term ***input***, ***output***, ***processing*** or ***storage*** next to the letter that best describes the stage as shown in the diagram below.



(4 marks)

(b) For EACH of the terms input, output, processing and storage, write ONE example of a device that is used to perform this operation. **(4 marks)**

Total 8 marks

2. Floppy disks were once the usual medium for saving files.

(a) Describe ONE example where it would still be sensible to use a floppy disk for software distribution. **(1 mark)**

(b) State TWO different **devices**, other than floppy disks, that are used to store files. **(2 marks)**

(c) Using the two devices that you chose in 2 (b), state which ONE might hold more files. **(1 mark)**

(d) Suppose you decided to e-mail your work to your personal e-mail address. Describe ONE advantage and ONE disadvantage of doing this. **(2 marks)**

Total 6 marks

GO ON TO THE NEXT PAGE

3. Compute the following:

(a) The **eight-bit** binary representation of the decimal number 14. **(1 mark)**

(b) The sign-and-magnitude representation for the decimal number NEGATIVE 14. **(1 mark)**

(c) The result of 55 – 25, using eight-bit two's complement representation. Express your answer as an **eight-bit** binary number. **(3 marks)**

(d) The decimal equivalent for the **binary coded decimal** number 0011 0110 0000. **(2 marks)**

Total 7 marks

4. You have hired a company to create a software package called ABC specifically for your business.

(a) State the **general name** given to this type of software package. **(1 mark)**

(b) Suppose you bought a package similar to ABC, called FGH, 'off-the-shelf'.

(i) Explain what is meant by 'off-the-shelf'. **(1 mark)**

(ii) Describe ONE advantage and ONE disadvantage EACH of

a) hiring someone to create ABC

b) buying FGH. **(4 marks)**

(c) Suppose you wished to use ABC to integrate with your other software packages used in the business.

(i) Explain why you would want to integrate them. **(2 marks)**

(ii) Give ONE disadvantage that you might have in integrating these programs. **(1 mark)**

Total 9 marks

SECTION II – 30 marks

5. Write the list of applications A to E from Table 1 in your answer booklet. Match EACH application with the MOST appropriate input device from Table 2 and write the number of the device chosen next to the application.

Table 1

	APPLICATIONS
A	Point-of-sale
B	Games
C	Architectural design
D	Multiple-choice examination
E	Check processing

Table 2

	INPUT DEVICES
1	optical mark reader
2	barcode reader
3	magnetic ink character recognition
4	joystick
5	plotter

Total 5 marks

6. (a) Identify TWO industries in which robots are useful. **(2 marks)**

(b) State ONE advantage EACH of using robots in EACH industry identified in 6 (a). **(2 marks)**

(c) State ONE disadvantage of using robots in industry. **(1 mark)**

Total 5 marks

7. Consider the following encryption code where each letter of a password represents a different letter in the alphabet (A is represented as G, B as H, C as I and so on).

Password letters	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L
Encryption letters	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R

(a) (i) What is the encription code for the password **HIKE**? **(1 mark)**

(ii) If the encrypted password is represented as **RED** what is the real password? **(1 mark)**

(b) What is the purpose of having a password? **(1 mark)**

(c) Within many organizations, data can be stored in a central location where staff in various departments can have access to them. Describe TWO problems that may arise because of sharing these data. **(2 marks)**

Total 5 marks

GO ON TO THE NEXT PAGE

8. (a) James is a **computer trainer** while Rachel is a **systems analyst**. Give ONE function of EACH of these roles. **(2 marks)**

(b) Give the meaning of the following terms:

(i) Telemarketing **(1 mark)**

(ii) Telecommuting **(1 mark)**

(iii) Teleconferencing **(1 mark)**

Total 5 marks

9. (a) Explain what is meant by 'computer-related crime'. **(1 mark)**

(b) Give TWO examples of computer-related crime. **(2 marks)**

(c) Give TWO steps that can be taken to help prevent computer-related crime. **(2 marks)**

Total 5 marks

10. The ***Computers for Caribbean Schools*** project provides at least one computer for all classrooms.

(a) State TWO ways in which the computers can be used in the classroom. **(2 marks)**

(b) One class added two other devices to their computer and can now capture copies of their own photographs, create greeting cards and print them. State the TWO devices that were added. **(2 marks)**

(c) One class connected their computer to the Internet. List ONE way in which they can protect their computer from getting viruses. **(1 mark)**

Total 5 marks

TECHNICAL PROFICIENCY

THIS SECTION IS FOR TECHNICAL PROFICIENCY CANDIDATES ONLY.

SECTION III – 30 marks

PROGRAMMING

ANSWER ALL QUESTIONS

11. (a) Draw a flowchart to represent the following algorithm:

(i) Prompt the user to enter an integer **(1 mark)**

(ii) Read the integer and store in variable N **(1 mark)**

(iii) Divide the number by 2 and store the remainder in variable ANS **(1 mark)**

(iv) If ANS is

a) zero (0), multiply N by itself (N*N) and place the result in variable Y

b) not zero (0), multiply N by 2 (N*2) and place the result in Y **(3 marks)**

(v) Print the answer (Y). **(1 mark)**

(b) Calculate and write the value that will be printed if the number input is 13. **(1 mark)**

Total 8 marks

12. Consider the following algorithm:

```
1.  Identify and initialize variables
    a ← 2,  d ← 0
2.  Begin Processing
3.     If a > 5
4.           d ← 2* (d + 1)
5.  else
6.           while a < 5
7.           begin
8.                d ← d + a
9.                a ← a + 1
10.          end
11. Y ← d * d
12. Print Y
13. End Processing
```

Step	d	a
0	0	2
1		
2		
3		
4		

Table 3

(a) Copy the trace table (**Table 3** above) into your answer book. Show how EACH value in the TWO variables (a, d) changes, during processing. **(6 marks)**

(b) Calculate the value of Y in line 11. **(2 marks)**

(c) Using the four lines highlighted in the algorithm (3, 6, 8, 12), write the line number that corresponds to the following labels:

(i) Output statement **(1 mark)**

(ii) Arithmetic operation **(1 mark)**

(iii) Conditional statement **(1 mark)**

(iv) Loop **(1 mark)**

Total 12 marks

13. Write a structured program using the following algorithm:

(a) Prompt a user to enter an integer value **(2 marks)**

(b) Store the value in a variable ***num*** **(2 marks)**

(c) Multiply **num** by **num**, and put the result in numsqr **(2 marks)**

(d) Print the result if it is less than or equal to 1000. Otherwise, print the following message:

THE OUTPUT IS VERY LARGE **(4 marks)**

Total 10 marks

GENERAL PROFICIENCY

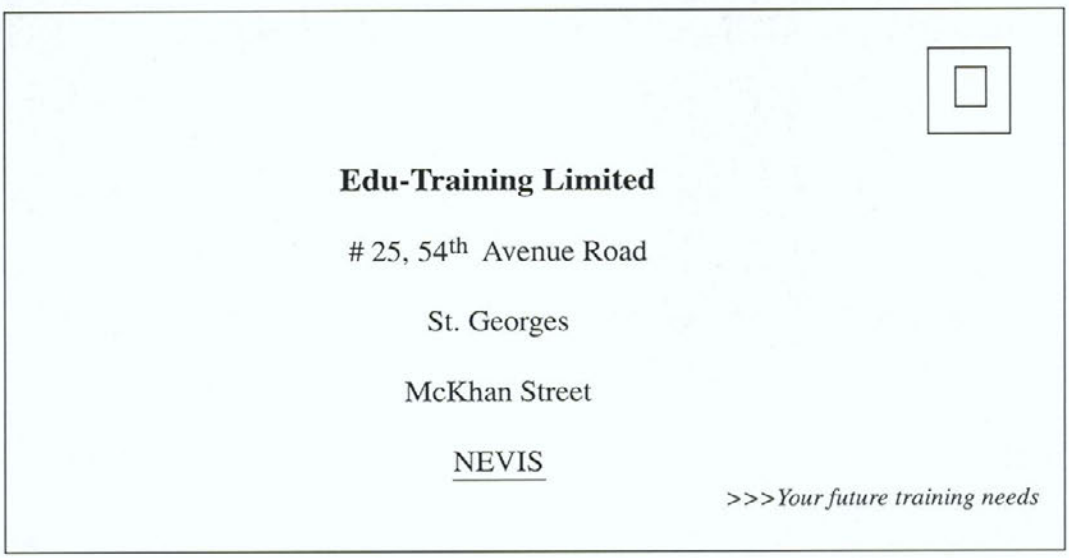
THIS SECTION IS FOR GENERAL PROFICIENCY CANDIDATES ONLY.

SECTION IV – 30 marks

PRODUCTIVITY TOOLS

ANSWER ALL QUESTIONS

14. The following questions relate to Word processing, and to the envelope below:



(a) State whether the word wrap feature can be seen in any text in the envelope. **(1 mark)**

(b) Name TWO formatting features used in the document. **(2 marks)**

(c) Write TWO types of alignments, used in the text above. **(2 marks)**

(d) How would you interchange the **third** and **forth** lines in a document? **(2 marks)**

(e) Explain the purpose of the **print preview** feature of your word-processing program. **(2 marks)**

(f) State the line spacing used in the document. **(1 mark)**

Total 10 marks

15. The following questions relate to Spreadsheets.

	A	B	C	D	E
1	**PHONE MODEL**	**PRICE**	**IN STOCK**	**SOLD**	**REMAINING**
2	MB607	14.99	4200	2200	2000
3	MB613	18.99	3650	1867	1783
4	MB614	18.99	4045	2245	1800
5	CP292	19.99	2634	1250	1384
6	MB612	110.99	3201	1664	1537
7	MB618	112.75	2876	1135	1741
8	CP307	116.99	1745	900	845
9	CP305	312.75	2255	200	2055
10					
11	Total	726.44	24606	11461	13145

The spreadsheet above indicates the number of cellphones sold during the period 2007.

(a) How many rows and columns are in the spreadsheet? **(2 marks)**

(b) Write the RANGE that shows the number of phones sold for EACH model. **(1 mark)**

(c) State the **cell location** and **write the formula** that will compute the TOTAL number of cellphones remaining. **(2 marks)**

(d) State which column of data should be formatted for currency. **(1 mark)**

(e) If the value in cell C6 is changed, list TWO cells whose value will be affected, given that formulae are inserted to compute the totals. **(2 marks)**

(f) What is the default **alignment** for:

(i) Numeric data? **(1 mark)**

(ii) Text data? **(1 mark)**

Total 10 marks

16. The following questions relate to Database Management:

The owner of a small computer store maintains a stock card for EACH item in the store. A sample of the stock card is shown below:

Phone Model	Description	Quantity	Price	On Sale
MB607	ATT Flip Top	2209	14.99	No

(a) Design the structure of a database table to correspond to the stock card. Your table structure should include appropriate Field Names, Field Type and Field Size. The data in the 'On Sale' field should only be Yes or No. **(3 marks)**

(b) Which field in the table is the MOST appropriate to have a unique value? **(1 mark)**

(c) State TWO ways in which the data in the table can be arranged. **(2 marks)**

(d) List TWO meaningful queries that would be of benefit to the storeowner. **(2 marks)**

(e) The storeowner needs a price list showing the Phone Model, Description and Price. Explain how this report can be generated. **(2 marks)**

Total 10 marks

END OF TEST