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CARIBBEAN EXAMINATIONS COUNCIL

SECONDARY EDUCATION CERTIFICATE EXAMINATION

INFORMATION TECHNOLOGY

Paper 02 – General Proficiency

2 hours 15 minutes

14 MAY 2012 (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) Rearrange the following units of storage in order of size with the SMALLEST at the top:

- Gigabyte
- Terabyte
- Kilobyte
- Megabyte **(4 marks)**

(b) (i) What is the meaning of the term‘bit’? (**1 mark)**

(ii) How was the term ‘bit’ derived? (**1 mark)**

(c) Explain ONE difference between a ‘word’ and a ‘byte’. **(2 marks)**

(d) Explain the term ‘bi-stable device’. (**2 marks)**

Total 10 marks

2. (a) Write the output devices listed below in your answer booklet. Write the appropriate related task next to EACH output device.

	Output Devices	**Tasks**
(i)	VDU	Draw a house plan
(ii)	Headphones	Print cheques
(iii)	Plotter	Output individual audio responses in a language lab
(iv)	Printer	Output video

(**4 marks)**

(b) Give ONE situation when it would be better to use

(i) an impact printer instead of an ink jet printer. State ONE reason to justify your answer. (**2 marks)**

(ii) a laser printer instead of a dot matrix printer. State ONE reason to justify your answer. **(2 marks)**

(iii) a page printer instead of a character printer. State ONE reason to justify your answer. (**2 marks)**

Total 10 marks

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3. (a) State THREE functions of an operating system. **(3 marks)**

(b) Use the items below to answer (b) (i) – (b) (iv).

Pascal Compiler
Microsoft Office Suite
Windows XP

Select from the list above, ONE item that serves as an example for EACH of the following software.

(i) System software **(1 mark)**

(ii) Operating software **(1 mark)**

(iii) General purpose software **(1 mark)**

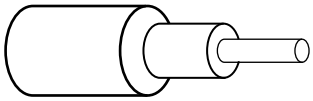
(iv) Integrated software **(1 mark)**

(c) Explain why it is necessary to customize certain types of software and give ONE example of customized software. (**3 marks)**

Total 10 marks

4. (a) Name the THREE types of cabling shown in Figure 1. **(3 marks)**

A. 

B. 

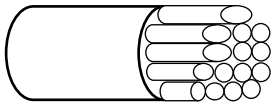
C. 

Figure 1

(b) Identify TWO types of wireless media. **(2 marks)**

(c) Write the types of network listed below in your answer booklet. Write the associated application next to EACH network.

	Network	Application
(i)	LAN	A network connecting computers in a university campus
(ii)	WAN	A network connecting computers in a secondary school
(iii)	MAN	A network connecting computers in a country

(3 marks)

(d) (i) What is the meaning of the term ‘modem’? **(1 mark)**

(ii) How was the term ‘modem’ derived? **(1 mark)**

Total 10 marks

5. (a) The table below lists job titles of computer professionals and tasks. Write the job titles of the computer professionals in your answer booklet. Write the task performed by EACH professional next to the correct job title.

	Computer Professional Job Title	**Task**
(i)	Network administrator	Develops schema
(ii)	Systems programmer	Identifies functional requirements
(iii)	Programmer	Maintains programs
(iv)	Systems analyst	Installs WAPs
(v)	Database administrator	Replaces hard drives
(vi)	Computer technician	Installs utilities

(6 marks)

(b) The table below lists different types of technology and professions. Write the professions in your answer booklet. Write the technology associated with EACH profession next to the correct profession.

	Profession	**Technology**
(i)	Music	Biometrics
(ii)	Law enforcement	Multimedia
(iii)	Engineering	MIDI
(iv)	Training	Sensors

(4 marks)

Total 10 marks

6. In most national census exercises, data are collected and entered on forms by interviewers. Data from the forms are then captured on tapes by data entry personnel. Finally, the data from the tapes are merged into a single file.

(a) Identify ONE error that can occur during the **data collection** phase. **(1 mark)**

(b) Identify ONE error that can occur during the **data capture** phase and describe how this type of error can be reduced. **(2 marks)**

(c) Before the merged data can be used to generate reports it must be validated. State the meaning of the term 'validation'. **(1 mark)**

(d) Name and describe THREE checks that can be used to validate the data. **(6 marks)**

Total 10 marks

SECTION II

PRODUCTIVITY TOOLS – 15 marks

Answer ALL questions.

7. Students preparing for an international music examination must pass an internal assessment (IA) component to be eligible to sit the final examination. The IA consists of one assignment worth 20 marks, one test worth 20 marks and one practical exercise worth 20 marks. To pass the IA, students must obtain 60% or above out of a total of 60 marks. The marks earned by five students for the IA are shown in the spreadsheet below.

	A	B	C	D	E	F	G
1	Name	Assignment (20)	Test (20)	Practical (20)	Total IA (60)	% of Total IA	Status
2	Smith	15	12	13			
3	Allen	12	11	12			
4	Persaud	16	12	14			
5	Mohamed	10	12	15			
6	Harewood	14	15	11			

(a) State the name of the student who will be at the top if the data in the spreadsheet are sorted in descending order by the Total IA marks. **(1 mark)**

(b) Write the function in cell E4 to compute the Total IA marks obtained by Persaud. **(2 marks)**

(c) If a student scores 60 % or above on the IA the student is given a status of 'Eligible' while for any mark below 60%, the student is given a status of 'Not Eligible'. State the function that will be inserted in cell G6 to indicate the status of student Harewood. **(3 marks)**

(d) A pie chart was created to show the names of the students and the percentage scores they obtained on the IA. State the data range used in the chart. **(1 mark)**

Total 7 marks

8. The TECHVOC unit of the Ministry of Labour uses a database with two tables to store information on the number of uncertified persons with technical skills in the various areas of the country. The data in the two tables are shown below.

TABLE 1: AREA

AREA_ID	AREA_NAME
B1	Corriverton
B2	New Amsterdam
D1	East Coast
D2	Georgetown
E1	Supernaam
E2	Anna Regina

TABLE 2: SKILL

SKILL	AREA_ID	UNCERTIFIED
Mechanic	D2	120
Mason	E1	100
Mason	D2	60
Carpenter	E2	45
Welder	D1	30
Mason	B1	25
Mechanic	B2	25
Carpenter	B1	20

(a) List TWO data types used in the SKILL table. **(2 marks)**

(b) Write a query to show all areas with MORE THAN 50 uncertified masons and indicate how many records would be in the output of the query. (**3 marks)**

(c) State the number of uncertified persons in New Amsterdam. **(1 mark)**

(d) On which field is the SKILL table sorted? **(1 mark)**

(e) A report was generated for the SKILL table and the records were grouped by a field. State the name of ONE appropriate field that can used to group the records. **(1 mark)**

Total 8 marks

SECTION III

PROBLEM SOLVING AND PROGRAMMING – 45 marks

Answer ALL questions.

9. (a) Categorize the following pseudocode statements as input, processing, or output.

S1 Accept
S2 Add two numbers
S3 Calculate percentages
S4 Prompt the user
S5 Read a character
S6 Write a result **(6 marks)**

(b) (i) Copy and complete the following truth table where 1 represents 'Good at' and 0 represents 'Not good at'.

Homework	Studying	Homework AND Studying	Determination	Homework AND Studying AND Determination
1	1		1	
1	0		1	
0	1		0	
0	0		0	

(8 marks)

(ii) In the column for 'studying', explain what '0' represents. **(1 mark)**

Total 15 marks

10. Each Play Station III game has a tax of 10% added to its cost to calculate the final price. Write Pascal code to

(a) declare the tax value **(3 marks)**

(b) declare TWO variables **(3 marks)**

(c) calculate the final price of a game. **(4 marks)**

Total 10 marks

11. (a) Rewrite the following fragment of code using the control structures below.

```
For count  :=  1 to 10  DO
Begin
      read  (count)  ;

End;
```

(i) While loop **(4 marks)**

(ii) Repeat Loop **(4 marks)**

(b) Complete the following two sentences by replacing the letters A, B, C, D and E with the appropriate programming terms.

Shadwayne ____(A)____ the program to see if it was grammatically correct, meaning no ____(B)____ errors, that it did what it was intended to do, meaning no ____(C)____ errors, and that it produced some results, meaning no ____(D)____ errors. If there were errors, he would then ____(E)____ the program to locate and correct these errors. **(5 marks)**

(c) THREE of the following statements describe external documentation. Identify them and write the corresponding numbers in your answer booklet.

D1: Includes frequently asked questions

D2: Makes it easier to read and understand the program

D3: States the version of the program and the installation procedure

D4: Suggests how users should use the program such as starting or exiting the program

D5: Use of indentation **(2 marks)**

Total 15 marks

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12. Consider the following program in Pascal, and answer the questions that follow.

```
PROGRAM IRG;
VAR    ALPH: ARRAY[1..3] of CHAR;
       Let : CHAR;
       Inc : INTEGER;

BEGIN
       Inc := 0;
       Let := 'G';

FOR Inc := 1 TO 3 DO
       ALPH [Inc] := Let;

FOR Inc :=1 to 3 DO
       Writeln(ALPH [Inc]);
END.
```

(a) State the name of the program. **(1 mark)**

(b) State the name of the array. **(1 mark)**

(c) State the size of the array. **(1 mark)**

(d) What is the output when the program is executed? **(2 marks)**

Total 5 marks

END OF TEST

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