

FORM TP 2014210



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MAY/JUNE 2014

CARIBBEAN EXAMINATIONS COUNCIL

CARIBBEAN ADVANCED PROFICIENCY EXAMINATION*

INFORMATION TECHNOLOGY

UNIT 1 – Paper 02

2 hours 30 minutes

05 MAY 2014 (p.m.)

READ THE FOLLOWING INSTRUCTIONS CAREFULLY.

1. This paper consists of THREE sections and NINE questions.
2. Answer ALL questions.



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SECTION 1 - FUNDAMENTALS OF INFORMATION TECHNOLOGY

Answer ALL questions.

1. Automated information processing has almost completely replaced manual information processing in many organizations.
- (a) (i) List TWO steps in manual information processing and the corresponding steps in automated information processing. [4 marks]
- (ii) Describe THREE **negative** impacts of automated information systems. [6 marks]
- (b) Farid, a race horse trainer, has developed an information system to assist him with the breeding and training of race horses. The system is designed so that it can potentially replace Farid when he retires.
- (i) What type of automated information system BEST describes the system above? [1 mark]
- (ii) Outline ONE advantage and ONE disadvantage of this type of information system. [4 marks]
- Total 15 marks**
2. (a) (i) Explain TWO benefits of using an online questionnaire to collect data. [4 marks]
- (ii) Discuss THREE issues that may affect the quality of data collected using online questionnaires. [6 marks]
- (b) Read the following paragraph then answer the questions below.
- Inuran interviewed 25 international cricketers from 4 countries about their favorite things to do. 13 cricketers said they love to visit the peaceful scene of the English countryside. 5 said they love a tasty Indian curry and 7 said they feel excited about 12 ounces of latte with a frothy appearance.*
- (i) List TWO examples of quantitative data mentioned in the paragraph above. [2 marks]
- (ii) List THREE examples of qualitative data mentioned in the paragraph above. [3 marks]
- Total 15 marks**

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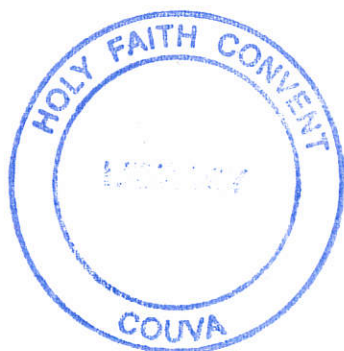
3. The Internet provides users with a range of electronic sources of information for everyday use.
- (a) State TWO electronic sources of information that are available through the Internet. [2 marks]
 - (b)
 - (i) Discuss TWO advantages and ONE disadvantage of electronic sources of information over non-electronic sources of information. [6 marks]
 - (ii) Outline THREE reasons why it is important for some information sources to be in BOTH formats. [6 marks]
 - (c) Various online tools are available for the storage and retrieval of information as required by users.
 - (i) List TWO search engines available on the Internet. [2 marks]
 - (ii) Outline TWO advantages of using a mailing list to disseminate information online. [4 marks]
- Total 20 marks

SECTION II – INFORMATION TECHNOLOGY SYSTEMS

Answer ALL questions.

4. The operating system is sometimes referred to as the most important software of a computer system.
- (a)
 - (i) State THREE examples of an operating system software. [3 marks]
 - (ii) Outline THREE functions of the operating system software. [6 marks]
 - (b) Open source software is used extensively by large corporations and individuals for important tasks.
 - (i) List TWO examples of open source software. [2 marks]
 - (ii) Outline TWO benefits of open source software. [4 marks]
- Total 15 marks

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5. Computer networks help businesses organize their IT resources for maximum use and effective management of these resources.
- (a) Outline THREE advantages of using a computer network instead of stand-alone computers. [6 marks]
 - (b) An organization wishes to network five computers and one printer in the HR department.
 - (i) Draw a diagram to represent a network topology that would allow the computers and printer to be connected in such a way that the failure of any one of the computers (or its connection) will not affect the function of the network as a whole. [4 marks]
 - (ii) Identify the topology drawn in (b) (i) above and state why network failure is prevented in the case of one computer (or its connection) failing. [2 marks]
 - (iii) There are other topologies where the failure of a single device will result in a complete or partial network failure. Draw a labelled diagram to illustrate one such topology. [3 marks]
- Total 15 marks**
6. (a) (i) With the aid of a labelled diagram, illustrate the steps of the systems development lifecycle (SDLC). [6 marks]
- (ii) Interviews and observations are two commonly used tools for soliciting information from users during the SDLC process. Outline TWO advantages of using interviews instead of observations [4 marks]
- (b) Explain ONE benefit of using a prototype in the software development process. [2 marks]
- (c) The World Wide Web (WWW) has emerged as the most popular means of providing and accessing information.
- (i) Describe ONE client and ONE server software tool that is used to access the WWW. [4 marks]
 - (ii) Outline TWO differences between Hypertext Markup Language (HTML) and Extensible Markup Language (XML). [4 marks]

Total 20 marks

SECTION III – INFORMATION AND PROBLEM SOLVING

Answer ALL questions.

7. (a) (i) Identify the FIRST and LAST stages of the problem-solving process. [2 marks]
- (ii) Describe THREE important questions that should be asked during the SECOND stage of the problem-solving process. [6 marks]
- (b) Ringo is a rural cattle farmer. Over the last two years he has lost animals to an unknown disease which has caused him to suffer losses. He was advised by some friends to consult refereed sources for more information about this unknown disease.
- (i) Ringo has never heard about refereed sources before. Identify THREE pieces of information that would be relevant for Ringo as he searches for refereed sources. [3 marks]
- (ii) Outline TWO advantages of using a refereed source of information compared with a non-refereed source. [4 marks]

Total 15 marks

8. Data flow diagrams (DFDs) are used to show the flow of data through an information system.
- (a) (i) State TWO types of data flow diagrams. [2 marks]
- (ii) Draw the symbols used in DFDs to represent EACH of the following.
- a) Data flow
 - b) Process
 - c) External entities
 - d) Data stores [4 marks]
- (b) John was asked to design a students' records management software package. After researching possible approaches, John suggested that he will use the object-oriented paradigm.
- (i) Explain TWO benefits of using the object-oriented paradigm to design software. [4 marks]
 - (ii) State THREE features of any object-oriented program. [3 marks]
 - (iii) State TWO programming paradigms other than the object-oriented paradigm. [2 marks]

Total 15 marks

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9. Programming is the process of creating instructions for the computer to solve a particular problem.

- (a) (i) State TWO types of control structures used in program code. [2 marks]
- (ii) Explain ONE advantage of using a flow chart over pseudocode to represent algorithms. [2 marks]
- (b) Draw the flow chart for the algorithm illustrated below.

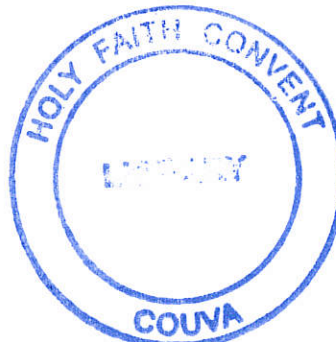
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1.  Input N
2.  While N < 10 ;
3.  Input M
4.  M = M + N
5.  Display M
6.  Input N
7.  ;
8.  Print "goodbye!"
    
```

[10 marks]

- (c) Testing is one stage in the program development cycle.
 - (i) List TWO **other** stages in the program development cycle that can take place after testing. [2 marks]
 - (ii) Explain TWO problems that may arise if program code is not tested before use. [4 marks]

Total 20 marks



END OF TEST

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