

Caribbean Examinations Council



# Information Technology



**CAPE® PAST PAPERS**

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## **CAPE® Information Technology Past Papers**

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TEST CODE **02129020**

**FORM TP 2008221**

MAY/JUNE 2008

**CARIBBEAN EXAMINATIONS COUNCIL**

**ADVANCED PROFICIENCY EXAMINATION**

**INFORMATION TECHNOLOGY**

**PAPER 02**

*1½ hours*

**14 MAY 2008 (p.m.)**

**INSTRUCTIONS TO CANDIDATES**

1. This paper consists of THREE sections.
2. Answer ONE question from EACH section.

## SECTION I – INFORMATION SYSTEMS

**Answer ONE question from this section.**

1. The hardware component of a computer system is made up of several smaller subsystems designed to work in an integrated manner to produce results. The processor is one of the subsystems.
  - (a) Identify THREE other major subsystems of the computer hardware system. [ 3 marks]
  - (b) (i) For EACH subsystem named in (a), identify a device of that subsystem. [ 3 marks]
  - (ii) Describe the function of EACH of the FOUR subsystems of a computer system. [ 8 marks]
  - (c) Draw a block diagram that shows the relationship between ALL the hardware subsystems. [ 7 marks]
  - (d) Discuss THREE health problems that may arise from the use of the computer, clearly stating the cause of EACH health problem and explaining how the risk to persons might be reduced. [ 9 marks]

**Total 30 marks**

2. Information Technology has changed the way people learn, work and play. The sophisticated software that makes this possible is typically developed by strict adherence to the software engineering process. The software engineering process can be considered to consist of Analysis, Design, Development, Implementation and Maintenance.
  - (a) For EACH task below, identify the software engineering stage in which it occurs.
    - (i) Write a test plan;
    - (ii) Modify a program based on new government regulation;
    - (iii) Train users;
    - (iv) Interview users of the old system;
    - (v) Draw screen layouts;
    - (vi) Develop data flow diagrams. [ 6 marks]
  - (b) Describe any FOUR stages of the software engineering process. [12 marks]
  - (c) Develop a CONTEXT LEVEL data flow diagram (DFD) to show the flow of information when a student borrows a book from the school library. [ 8 marks]
  - (d) Examine the following scenarios. For EACH scenario described, state the type of information system that should be developed to adequately manage these processes. Give ONE reason to justify your choice of system.
    - (i) Regulating the flow of water into and out of a dam.
    - (ii) Using available information, heuristics and inference to suggest treatments for tropical diseases. [ 4 marks]

**Total 30 marks**

**GO ON TO THE NEXT PAGE**

## SECTION II – INFORMATION PROCESSING AND PRESENTATION

**Answer ONE question from this section.**

3. An office suite is a collection of software productivity tools that many organisations use to increase efficiency and productivity. The word processor is an example of a productivity tool in office suites.

- (a) (i) State TWO other productivity tools that an office suite may contain.  
(ii) Name TWO office suite packages. [ 4 marks]
- (b) A florist uses the following advertisement to publicize her business. Describe FOUR ways in which a word processor package could be used to make the advertisement more effective, clearly stating the expected benefit of that change.



[ 8 marks]

- (c) Discuss TWO advantages and ONE disadvantage of a desktop publishing package when compared with a word processor. [12 marks]
- (d) Examine the following tasks. For EACH case, indicate which of the two software packages mentioned in (c) is BEST suited to the task described. Give ONE reason to justify your choice.
- (i) Sending letters to parents/guardians of students sitting the CXC examinations, inviting them to a meeting to discuss important matters.
- (ii) Creating a four-page newsletter, with the first page having three columns and the other pages having four columns. Pictures should be on the first and third pages, and should not be confined to the width of any column. [ 6 marks]

**Total 30 marks**

4. A medium-sized grocery uses IT systems for a variety of purposes including inventory control and over-the-counter sales. When items are sold, the Point-of-Sale system produces an itemised receipt for the customer and updates the number of items in stock. The structures of two tables in the database system are shown below, without indicating their primary keys.

**Supplier table**

Contact_person
Supplier_name
Supplier_code
Supplier_address_1
Supplier_address_1

**Item table**

Item_description
Item_code
Unit_price
Qty_in_stock
Minimum_stock_level
Reorder_qty
Pack_size
Supplier_code

- (a) (i) What is meant by the term 'primary key'? [ 3 marks]
- (ii) For EACH table indicate which attribute or group of attributes is BEST suited to be the primary key. [ 2 marks]
- (iii) When the quantity in stock falls below the minimum stock level, the grocer places orders with the suppliers to replenish the stock. Records in the item table must be linked to records in the supplier table. How can the link be made? [ 3 marks]
- (iv) The ability to correctly link records in the item table with those in the supplier table implies a vital assumption. State that assumption. [ 2 marks]
- (b) The government implemented a three-tiered consumption tax on items. One category of items will be non-taxable; another category will be taxed at a low rate and the other category, known as luxury items, will be taxed at a high rate. Develop a table in the database system to handle the various categories of items and the applicable tax rate. [ 5 marks]
- (c) Discuss TWO advantages and ONE disadvantage of a database management system package when compared with a spreadsheet package. [ 9 marks]
- (d) Examine the following tasks. As an IT specialist, which of the software packages mentioned in (c) would be MORE appropriate for your client? Give a reason to justify your choice.
- (i) To retrieve information on items which match a set of criteria.
- (ii) To immediately see the impact on the net profit/loss in the Profit and Loss Statement by making adjustments to certain figures such as Sales, Cost of Goods or Wages. [ 6 marks]

**Total 30 marks**

GO ON TO THE NEXT PAGE

### SECTION III – INFORMATION AND COMMUNICATION SKILLS

Answer ONE question from this section.

5. At many international airports, computer users may access the Internet via Hot Spots, which are ‘wireless communication’ access points.
- (a) Explain what is meant by ‘wireless communication’. [ 4 marks]
  - (b) Name TWO devices other than the computer that operate using ‘wireless communication’ technology. [ 2 marks]
  - (c) Identify and describe the functions of TWO devices that are necessary to secure Internet access by wireless means. [ 6 marks]
  - (d) Discuss TWO benefits of wireless communication in general. [ 6 marks]
  - (e) Discuss THREE problems of wireless Internet access compared with more traditional forms of access. [12 marks]

**Total 30 marks**

6. At the last regional IT conference, one speaker made the point that one should not accept or reject information simply on face value, that is, based on how it looks, or sounds. She went on to say that the characteristics of information must be examined.
- (a) List FOUR characteristics of information. [ 4 marks]
  - (b) Using examples, show how THREE of the characteristics identified in (a) are important in evaluating information. [12 marks]
  - (c) You overhear two friends having a discussion on the categories of information: essential, cosmetic and desirable in relation to problem solving. However, it is obvious to you that they do not have a clear understanding of the categories. Using examples, explain what is meant by EACH of these categories. [ 9 marks]
  - (d) A doctor, on examining a patient, realises that the patient has a contagious disease which is life threatening to himself and others. Identify FIVE pieces of information that are essential to the treatment of the disease. [ 5 marks]

**Total 30 marks**

**END OF TEST**



**FORM TP 2008222**

TEST CODE **02129032**

MAY/JUNE 2008

CARIBBEAN EXAMINATIONS COUNCIL

**ADVANCED PROFICIENCY EXAMINATION**

**INFORMATION TECHNOLOGY**

**PAPER 03/2**

*1½ hours*

**14 MAY 2008 (p.m.)**

**INSTRUCTIONS TO CANDIDATES**

This paper consists of THREE questions.

Answer ALL questions.

1. With reference to a specific emerging technology that you have studied, answer the following questions.

- (a) Describe the technology showing why it is considered to be an emerging technology. [ 5 marks]
- (b) Discuss ONE main intended purpose of the technology indicating the level of success and general impact of that technology on societies. [ 5 marks]
- (c) Discuss TWO potential benefits of the technology. [10 marks]

**Total 20 marks**

2. Data are to be collected on the emerging technology (question 1) to determine the potential impact on your locality.

- (a) (i) What type of data collection method is MOST appropriate, in this setting, to make this determination? [ 2 marks]
- (ii) Justify your selection of the type of data in (a) (i) relative to the purpose of the technology. [ 2 marks]
- (b) (i) Discuss TWO data collection methods that would be appropriate to capture the relevant data.  
(Be sure to consider validation and verification issues in your response.) [ 6 marks]
- (ii) Suggest an appropriate tool or package that may be used to store these data. [ 2 marks]
- (c) Discuss the analyses that could be done on these data to determine the usefulness of the emerging technology. [ 8 marks]

**Total 20 marks**

3. The results of your work (question 2) are to be shared with a selected group of persons.

- (a) Identify TWO Information Technology tools that can be used to present these findings. [ 2 marks]
- (b) Describe how you would use TWO features of ONE of the tools identified in (a) to present the findings of the investigation. [ 8 marks]
- (c) Discuss TWO possible problems that could be encountered using the tool identified in (b). [10 marks]

**Total 20 marks**

**END OF TEST**

02129032/CAPE 2008



**FORM TP 2008221**

TEST CODE **22129020**

MAY/JUNE 2008

**CARIBBEAN EXAMINATIONS COUNCIL**

**ADVANCED PROFICIENCY EXAMINATION**

**INFORMATION TECHNOLOGY**

**PAPER 02**

*1½ hours*

**14 JULY 2008 (p.m.)**

**INSTRUCTIONS TO CANDIDATES**

1. This paper consists of THREE sections.
2. Answer ONE question from EACH section.

## SECTION I – INFORMATION SYSTEMS

Answer ONE question from this section.

1. Device drivers are one category of software.

- (a) Name THREE **other** categories of software and give an example of EACH. [ 6 marks]
- (b) Outline the function of EACH of any THREE categories of software. [ 6 marks]
- (c) Organisations use several types of information systems to manage their operations. Three of these systems are:
- Transaction Processing Systems (TPS)
  - Management Information Systems (MIS)
  - Control and Monitoring Systems

Discuss the application of EACH information system to a large manufacturing firm. Your response should include the **major** input and output of the information system, and the organisational level at which the information system is typically used. [12 marks]

- (d) Software developers use Data Flow Diagrams (DFDs) to map the flow of information in organisations. A context diagram is the first of these diagrams.

A retail store sells products to cash and credit customers. Draw a **context diagram** of the CUSTOMER ORDER SYSTEM. [ 6 marks]

**Total 30 marks**

2. The introduction and use of IT systems have positive and negative implications for individuals and companies.

- (a) What is meant by EACH of the following terms?
- (i) Computer virus [ 2 marks]
  - (ii) Proprietary software [ 2 marks]
  - (iii) Privacy [ 2 marks]
- (b) Software piracy is of particular concern to software developers.
- (i) Give TWO reasons why software products are susceptible to piracy. [ 2 marks]
  - (ii) Discuss TWO strategies that a software developer should use to reduce, or prevent, software piracy. [ 4 marks]

- (c) Discuss THREE health problems that are associated with the use of computer hardware. Your discussion should include the **name** of EACH problem, **causes** and **symptoms** of the problem and **measures** that may be taken to prevent it from occurring.

[12 marks]

- (d) Many companies are concerned with the financial and economic costs associated with the replacement of IT systems due to 'rapid obsolescence'. Propose TWO different strategies that a company may use to mitigate these costs.

[ 6 marks]

**Total 30 marks**

## **SECTION II – INFORMATION PROCESSING AND PRESENTATION**

**Answer ONE question from this section.**

3. When Jordan Real Estate Agency was opened, its management made the strategic decision to use a relational database to manage the business.

- (a) (i) Give TWO advantages of using a 'normalised relational database' instead of a flat file.

[ 2 marks]

- (ii) Explain how EACH advantage identified in (a) (i) impacts on **either** the integrity **or** the performance of relational databases.

[ 4 marks]

- (b) Describe the FIRST THREE stages of the normalisation process.

[ 6 marks]

- (c) TWO of the tables from the Agency's database are shown below.

AGENT (agentNUMBER, agentLNAME, agentFNAME,  
agentADDRESS, agentPHONE)

CUSTOMER (customerNUMBER, customerLNAME,  
customerFNAME, customerADDRESS,  
customerPHONE, agentNUMBER)

- (i) For EACH table shown above, identify an appropriate **primary** key.

[ 2 marks]

- (ii) Identify the **foreign** key in the CUSTOMER table and justify your response.

[ 2 marks]

- (iii) Identify the HIGHEST **normal form** in the CUSTOMER table and justify your response.

[ 4 marks]

- (iv) What is the **relationship** between the AGENT and the CUSTOMER tables? Justify your response.

[ 4 marks]

- (d) Develop a report format to show ALL customers for ONE named agent.

[ 6 marks]

**Total 30 marks**

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4. Dr. Paul is conducting research on cancer in twins. She has identified several twins and writes to their doctors requesting permission for a registered nurse to administer a questionnaire to them. The data to be collected include age, weight, name, date of birth, gender and social habits.
- (a) Which category of software tool is MOST appropriate for
- (i) sending a standard letter to several persons?  
(ii) processing data, performing automatic recalculations and reporting the findings?  
(iii) communicating the results of her findings at an international conference? [ 3 marks]
- (b) Discuss TWO distinguishing features that make EACH category of software tool identified in (a) appropriate for the given task. [12 marks]
- (c) Dr. Paul has used a database to store her data and PATIENT is one entity represented in the database.
- (i) What is an ‘entity’? [ 1 mark ]  
(ii) Design a **normalised** TABLE STRUCTURE for the PATIENT entity, to include at LEAST FOUR data fields identified in the scenario above. [ 5 marks]
- (d) (i) Identify THREE issues about which Dr. Paul should be concerned, when using the **software tools** identified in the scenario above. [ 3 marks]  
(ii) Give ONE suggestion for addressing EACH of the issues identified in (d) (i). [ 6 marks]

**Total 30 marks**

### SECTION III – INFORMATION AND COMMUNICATIONS SKILLS

**Answer ONE question from this section.**

5. Although some persons are concerned about the dangers associated with the Internet, many businesses believe that this medium provides several opportunities for growth and development.
- (a) Name and describe TWO hardware devices, **other than** the computer, that may be used to access the Internet by the traditional wired means. [ 6 marks]
- (b) (i) Give THREE **uses** of the Internet that businesses may explore to assist them to grow and expand. [ 3 marks]
- (ii) Explain how EACH use identified in (b) (i) may give a business an advantage over its competitors. [ 9 marks]
- (c) (i) State TWO problems that businesses may encounter when using the Internet. [ 2 marks]
- (ii) Discuss how businesses may minimize the risk associated with EACH problem identified in (c) (i). [ 8 marks]
- (d) A business wishes to communicate with suppliers in South Asia. The computer system is ‘off-line’. What TWO **hardware tools** can the manager use to communicate with the suppliers? [ 2 marks]

**Total 30 marks**

6. A college student was asked to prepare a research paper on 'Developments in the banana industry between 1940 and 1989' in a rural Caribbean district. The student is new to the district and must complete the project in two weeks.
- (a) (i) State FOUR characteristics of the information that should be considered by the student when doing the research paper. [ 4 marks]
- (ii) For ANY TWO of the characteristics identified in (a) (i), explain its relevance to the research paper. [ 4 marks]
- (b) List FOUR sources from which the student may obtain information for his research paper. [ 4 marks]
- (c) For ANY THREE information sources identified in (b), explain how EACH is relevant to the research paper. [ 9 marks]
- (d) (i) Choose any TWO sources in (b) and for EACH source, state ONE problem that the student **must** consider when using that source for the project. [ 2 marks]
- (ii) For EACH problem identified in (d)(i), explain why this would be a problem for the student. [ 4 marks]
- (iii) For ANY ONE problem identified in (d)(i), suggest a strategy for addressing this problem. [ 2 marks]
- (iv) The student has submitted his paper to the tutor and has used the strategy identified in (d) (iii). Identify ONE way in which the tutor may verify that the student has used the strategy. [ 1 mark ]

**Total 30 marks**

**END OF TEST**



**FORM TP 2009212**

TEST CODE **02129020**

MAY/JUNE 2009

**CARIBBEAN EXAMINATIONS COUNCIL**

**ADVANCED PROFICIENCY EXAMINATION**

**INFORMATION TECHNOLOGY**

**UNIT 1 – PAPER 02**

*2½ hours*

**13 MAY 2009 (a.m.)**

**INSTRUCTIONS TO CANDIDATES**

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

## SECTION I – FUNDAMENTALS OF INFORMATION TECHNOLOGY

**Answer ALL questions from this section.**

1. Information Technology involves the use of both data and information.
  - (a) Explain the term Information Technology, giving ONE example. [ 3 marks]
  - (b) Discuss TWO ways in which Information Technology can be used to provide timely delivery of services in High Schools in the Caribbean region. [ 4 marks]
  - (c) Data may be either qualitative or quantitative.
    - (i) Explain these TWO types of data. [ 4 marks]
    - (ii) A hotel website consists of a discussion board where guests share views on their experience at the hotel. The website also features the total number of visitors per year. Identify TWO appropriate pieces of data that may be found on this website and state the type of EACH piece of data identified. [ 4 marks]

**Total 15 marks**

2. Data are considered the input to processing, and information is considered the output.
  - (a) Give TWO scenarios of information being generated, clearly indicating the input-processing-output relationship. [ 6 marks]
  - (b) State the importance of the information produced in ONE of your scenarios given in (a). [ 1 mark ]
  - (c) The Animal Clinic currently uses a manual information processing system for tracking the animals they treat. BRIEFLY explain how EACH step in the manual information processing system below can be achieved using an automated information processing system.

Step 1 – Use a log book to record data about each animal, such as name, age and type.

Step 2 – At the end of each month, statistics are generated, such as total number of a given type of animal.

Step 3 – The statistics generated in Step 2 are then presented pictorially.

Step 4 – A report is sent by mail to the Regional Society for the Prevention of Cruelty to Animals (RSPCA). [ 8 marks]

**Total 15 marks**

3. Wikis and Online libraries are both popular means of conducting research on the web.
- (a) Explain these TWO web-based sources of information. [ 4 marks]
- (b) Universities have taken a clear position that references for academic research from wikis will NOT be accepted. Discuss why universities would need to take such a position. [ 4 marks]
- (c) John is an accountant at Chelsea Manufacturing Company Limited. He is approached by his general manager and told that the company will be implementing an Information Technology solution to improve the efficiency of the Accounts Department.
- (i) List the THREE types of tools used in Information Technology. [ 3 marks]
- (ii) For EACH type of tool identified in (c) (i), give ONE example. [ 3 marks]
- (iii) Justify the use of EACH tool identified in (c) (ii), in the Accounts Department. [ 6 marks]

**Total 20 marks**

## **SECTION II – INFORMATION TECHNOLOGY SYSTEMS**

**Answer ALL questions from this section.**

4. Every Information Technology System includes four distinct components. Hardware is one of the four components.
- (a) Name the other THREE components of an Information Technology System. [ 3 marks]
- (b) Explain the purpose of any TWO components of an Information Technology System that you have identified in (a), giving ONE example in EACH case. [ 4 marks]
- (c) Input and output devices are two types of hardware. Explain how these TWO devices can be used in a Point of Sale System. [ 4 marks]
- (d) Two types of printers are **laser** and **dot matrix**. Give ONE situation in which
- (i) a dot matrix printer is MORE appropriate for use than a laser printer
- (ii) a laser printer is MORE appropriate than a dot matrix printer. [ 4 marks]

**Total 15 marks**

5. Software is used to provide the computer with instructions.

- (a) Explain the function of Application Software. [ 2 marks]
- (b) Many organizations are beginning to see advantages in using Open Source Software and are moving towards its adaptation. Discuss TWO challenges that such organizations will confront with the use of Open Source Software. [ 4 marks]
- (c) Explain any TWO types of Information Systems. [ 6 marks]
- (d) Explain the importance of the analysis phase in the Software Engineering process. [ 3 marks]

**Total 15 marks**

6. Computer networks provide us with the facility to communicate and share resources such as data.

- (a) (i) Draw diagrams to illustrate TWO of the following topologies: STAR, RING, and BUS. [ 6 marks]
- (ii) State ONE advantage and ONE disadvantage of each of the THREE topologies listed in (a) (i). [ 6 marks]
- (b) Explain ONE benefit of a virtual private network (VPN). [ 2 marks]
- (c) You have been asked by the Ministry of Education to develop a Human Computer Interface for software to facilitate training. Discuss TWO user characteristics that you would need to consider in the development of the interface. [ 6 marks]

**Total 20 marks**

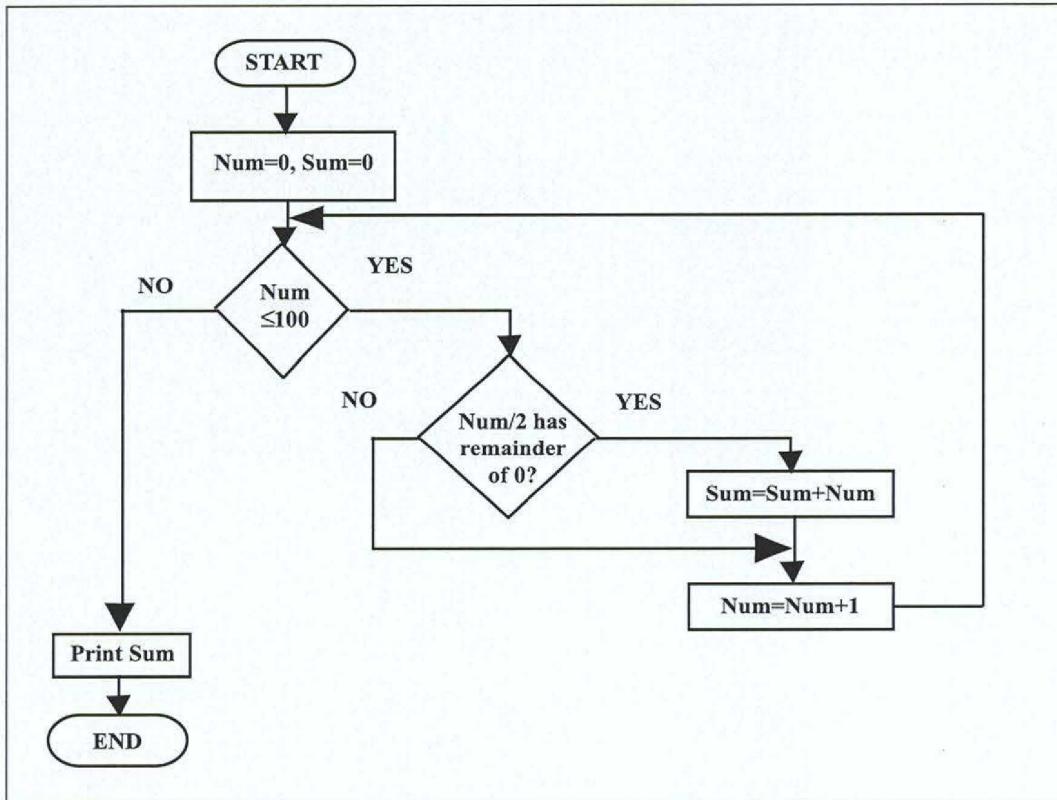
### SECTION III – INFORMATION AND PROBLEM SOLVING

**Answer ALL questions from this section.**

7. Your history teacher wants to create a simple program to automate the calculations of grades for students in the class. He has asked you to create the algorithm to be used by a programmer that he will employ.
- (a) State THREE stages of the problem-solving process. [ 3 marks]
  - (b) Explain the importance of an algorithm in the problem-solving process. [ 2 marks]
  - (c) State THREE properties that your algorithm must have for it to be considered a ‘well designed’ algorithm. [ 3 marks]
  - (d) The programmer has told the teacher that he can write the program using an assembly language or a procedural language. The teacher is now confused.
    - (i) Explain the difference between EACH of the types of languages named in (d). [ 5 marks]
    - (ii) State with reason, ONE advantage of using a procedural language to write the program. [ 2 marks]

**Total 15 marks**

8. Algorithms may be represented in different ways. Pseudocode and flowcharts are two such ways. Study the flowchart below and answer the questions that follow.



- (a) Explain what problem the flowchart solves. (You are not required to provide the output) [ 4 marks]
- (b) Write the pseudocode to represent the algorithm illustrated by the flowchart. [ 7 marks]
- (c) The following pseudocode was intended to calculate the sum of all numbers from 0 to 100 inclusive. When coded an infinite loop was created. Explain why the algorithm resulted in an infinite loop, and clearly state how it could be corrected.

```
Begin
    Count=0
    Sum=0
    While (Count<=100)
        Sum=Sum+Count
End
```

[ 4 marks]

**Total 15 marks**

9. The mortgage department of a housing development company wishes to CALCULATE the monthly payments for each applicant, based on his/her life expectancy and the amount of money to be borrowed by the applicant.

(a) For any FIVE pieces of information on the applicant listed below, specify whether the information is **essential**, **desirable** or **cosmetic** for CALCULATING the applicant's monthly mortgage payment. Justify your selection.

- Name of applicant
- Current contact information
- Date of Birth
- Picture of the applicant
- Medical Records
- Model of Housing Unit Selected
- Preferred Location
- Cost of the Unit

[10 marks]

(b) Sketch and state the purpose of any TWO of the following Data Flow Diagram symbols: Entity, Process, Data Store, Data Flow. [ 4 marks]

(c) The employees of the housing development company submit their time cards to the Payroll Department for processing. The payroll system determines the employee's weekly salary and generates a pay slip as well as a cheque for each employee. It also generates accounting information for the Accounts Department. Draw the **CONTEXT LEVEL** data flow diagram to illustrate this. [ 6 marks]

**Total 20 marks**

**END OF TEST**



**FORM TP 2009215**

TEST CODE **02229020**

MAY/JUNE 2009

**CARIBBEAN EXAMINATIONS COUNCIL**

**ADVANCED PROFICIENCY EXAMINATION**

**INFORMATION TECHNOLOGY**

**UNIT 2 – PAPER 02**

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

**04 JUNE 2009 (p.m.)**

**INSTRUCTIONS TO CANDIDATES**

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

## **SECTION I – INFORMATION MANAGEMENT**

**Answer ALL questions from this section.**

1. Historically, only text-based data were stored on computers. Today, data may be stored in a variety of formats.
  - (a) Identify THREE other formats in which data may be stored. [ 3 marks]
  - (b) Give THREE relevant criteria that a company should consider when deciding on which storage media to use. [ 3 marks]
  - (c) Discuss TWO situations where the use of a CD-RW or DVD+RW would be preferred over a hard disk for storage. [ 4 marks]
  - (d) A friend has a 2 MB word processing document that is saved on the hard drive of your computer. Explain how you would be able to store the entire file on a single 1.44 MB diskette. Justify your response. [ 5 marks]

**Total 15 marks**

2. Organizations have spent large sums of money implementing information systems to manage data.
  - (a) Give THREE advantages of using a relational database rather than a flat file storage and retrieval system. [ 3 marks]
  - (b) To store data off-line, many companies use a removable optical disk rather than magnetic tape. Discuss TWO file organization methods that are possible when using disk storage, but not when using tape storage. Your response should differentiate between the TWO file organization methods. [ 6 marks]
  - (c) Critically examine TWO concerns, other than data security that a company may have regarding its data. For EACH concern, your response should include a strategy that the company could use to minimise risks associated with the concern. [ 6 marks]

**Total 15 marks**

3. A car rental company keeps details of cars that are hired by persons in an un-normalised database table as shown in Table 1.

**TABLE 1**

Client Number	Client Name	Gender	Date of Birth	M/V Registration	Make	Model	Date Hired	Date Returned
1024	Ivy, C	M	20/10/1945	8066 AJ	Ford	Capri	2/2/2007	1/3/2007
				1645 AD	Toyota	Prado	15/5/2007	14/8/2007
2256	Rose, R	F	2/1/1956	7484 BX	Isuzu	Gemini	4/5/2007	12/5/2007
				0246 AE	Ford	Escort	21/1/2007	25/1/2007
				3844 DM	Mazda	626	6/9/2007	7/11/2007
3033	Lily, W	F	26/3/1987	7777 DR	Toyota	Corona	1/1/2007	1/7/2007
•								
•								
•								
8989	Bush, T	M	8/12/1977	8888 CA	Honda	Accord	4/11/2007	7/11/2007

The relation in Standard Notation is as follows:

**HiredCars (ClientNumber, ClientName, Gender, DateOfBirth,  
M/VRegistration, Make, Model, DateHired, DateReturned)**

- (a) Name and describe a suitable validation check for THREE fields of the HiredCars relation. All your validation checks must be different. [ 6 marks]
- (b) What makes the table un-normalised? [ 2 marks]
- (c) What is meant by the term normalisation? [ 2 marks]
- (d) When the data in Table 1 are fully-normalised, three relations, Client, MotorVehicle and RentalDetail are formed. Using Standard Notation, write the 3NF for TWO of these relations. [10 marks]

**Total 20 marks**

GO ON TO THE NEXT PAGE

## SECTION II – USE OF INFORMATION TECHNOLOGY TOOLS

**Answer ALL questions from this section.**

4. A charity organization provides humanitarian aid to countries that suffer natural disasters such as hurricanes or earthquakes. To assist staff in carrying out their work, the director decided to provide each worker with a laptop equipped with popular off-the-shelf software.

- (a) Identify THREE generic software tools that should be installed on the laptops to assist the staff with their work. [ 3 marks]
- (b) For EACH tool identified in (a), explain how the tool could be used to assist the staff in its efforts to provide humanitarian aid. [ 9 marks]
- (c) Data stored (produced) in one software tool may be integrated or shared with another software tool. Explain how TWO of the software tools identified in (a) can be used in this way to assist the organization in its work. [ 3 marks]

**Total 15 marks**

5. “*The source of information is as important as the information itself.*” This was the message reiterated by the main speaker to a group of young journalists.

- (a) Identify FOUR information sources. [ 4 marks]
- (b) For ONE of the sources identified in (a), explain a situation in which it could be appropriately used. [ 3 marks]
- (c) Examine EACH of the following statements. Critically evaluate TWO of the following statements, **paying particular attention to the source from which the statement was extracted.**
- (i) “Research from different sources shows that around 80% of confidential data losses originate within an organization and are carried out by an employee.” Extracted from an article in ITNOW, March 2005, a publication of The British Computer Society (BCS).
- (ii) “The performance of our candidates in the recent examinations showed a marked improvement when compared with the previous year,” said Dr. Laurence Nicholson, Principal, Mount Academy College, at the school’s graduation ceremony.
- (iii) “Approximately 80% of the world’s wealth is owned by 10% of the world’s population.” This statement was extracted from a website. [ 8 marks]

**Total 15 marks**

GO ON TO THE NEXT PAGE

6. A group of IT students write three papers for the end-of-year examination. Their teacher uses the spreadsheet shown below to calculate their grades.

	A	B	C	D	E	F	G	H	I
1	ABC ACADEMY								
2									
3	Results for Information Technology Examination 2004 - 2005								
4									
5									
6		Paper 01		Paper 02		Internal Assessment			
7	Name	Raw Score (150)	Scaled Score (50)	Raw Score (90)	Scaled Score (30)	Raw Score (60)	Scaled Score (20)	Total Score	Grade
8	Abel, T	83		59		45			
9	Anderson, C	100		78		52			
10	Batson, A	74		50		36			
11	Bird, L	112		85		57			
12	Brown, J	48		37		22			
13	....	....		....		....			
14	....	....		....		....			
15									

The raw score of each paper is to be scaled and then added to obtain a student's total score. The total score is out of 100, no decimal places are allowed. **There are 35 students in the group.**

Grades are awarded as follows:

- A = Total mark of 80 and above
- B = Total mark of 65 – 79
- C = Total mark of 50 – 64
- D = Total mark under 50

- (a) Other than general formatting features such as bold and font size, state FIVE spreadsheet features that the teacher used in DEVELOPING the worksheet. [ 5 marks]
- (b) The teacher wishes to know the number of students receiving each of the grades, A to D. Suggest a built-in function that you could use to generate the correct results. Justify your response. [ 4 marks]
- (c) Explain how the results obtained from (b), may be generated and presented on the teacher's worksheet. Clearly indicate the cell locations you would use to present this information. [ 5 marks]

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- (d) The HTML statements below will display a web page. Draw a labelled diagram to show the appearance of the web page when viewed by a web browser.

```
<HTML>
</HEAD>
    <TITLE> The Training Institute </TITLE>
<HEAD>
<BODY>
    <P>
        <IMG WIDTH = 120 HEIGHT =118 SRC=“logo.gif”>
        <H1>The Training Institute</H1></P>
        <H2>January 2008 Training Report</H2>
        <P>
            In January 2008 the institute facilitated three training courses:
            <OL>
                <LI>Organisaton and Methods</LI>
                <LI>Human Resource Management</LI>
                <LI>Business Report Writing</LI>
            <OL>
        </P>
        <P>
            Over seventy(70) persons were trained though some were repeaters.
        </P>
    </BODY>
</HTML>
```

[ 6 marks]

**Total 20 marks**

### **SECTION III – SOCIAL, ORGANIZATIONAL AND PERSONAL ISSUES**

**Answer ALL questions from this section.**

7. The management of ABC Ltd. decided to introduce a new information system in the new financial year.

- (a) State FOUR changes, from an employee's perspective, that may arise from the introduction of the information system. [ 4 marks]
- (b) For EACH of TWO of the changes identified in (a), briefly explain a possible effect on an employee of the company. [ 4 marks]
- (c) Discuss ONE threat or vulnerability, other than the exposure to viruses, that the company should consider before allowing employees access to the Internet. [ 4 marks]
- (d) Devise an appropriate strategy that the company might implement to counter the risks associated with the threat or vulnerability discussed in (c). [ 3 marks]

**Total 15 marks**

8. Caribbean countries are susceptible to a number of natural and other hazards such as hurricanes and power outages. These hazards pose grave danger and risks to ICT systems.

- (a) Identify THREE hazards, other than hurricanes and power disruptions, that could affect ICT systems. [ 3 marks]
- (b) Explain THREE risks to ICT systems from natural disasters or other hazards that a company should consider. [ 6 marks]
- (c) For ONE of the risks described in (b), develop an appropriate strategy that a company can follow to minimise or eliminate the risk. [ 3 marks]
- (d) What is a disaster recovery plan? Your answer should be relevant to ICT systems. [ 3 marks]

**Total 15 marks**

9. Information Technology systems not only provide individuals and organizations with innovative ways to work, study and play, but they also present ethical and legal dilemmas.

(a) Explain the following terms:

(i) Copyright

(ii) Information Privacy

[ 6 marks]

(b) Discuss TWO situations where it would be legally permissible to reproduce copyrighted material without the expressed approval of the holder.

[ 6 marks]

(c) A malware refers to a program that secretly enters a computer and disrupts its normal operations. Denis received an email with a .exe attachment, from a 'distant relative'. A few days later he discovered that his home computer was infected. In addition, several persons in his address book reported that their computers were infected.

Explain, with justification, what might have happened to Denis' computer, identifying the **type** of malware and **how** the problem could have been avoided. [ 4 marks]

(d) Alicia included in her research thesis a number of well-known statements, such as, '*there is nothing to fear, but fear itself*', without acknowledging the sources of the statements. Alicia's action is an example of a breach of the copyright laws.

(i) What is the specific name given to this breach?

[ 1 mark ]

(ii) Examine ONE action that her tutor could take as a possible consequence of Alicia's act.

[ 3 marks]

**Total 20 marks**

**END OF TEST**

3. A car rental company keeps details of cars that are hired by persons in an un-normalised database table as shown in Table 1.

**TABLE 1**

Client Number	Client Name	Gender	Date of Birth	M/V Registration	Make	Model	Date Hired	Date Returned
1024	Ivy, C	M	20/10/1948	066 AJ	Ford	Capri	2/2/2007	1/3/2007
				1645 AD	Toyota	Prado	15/5/2007	14/8/2007
	Rose, R	F	2/1/1956	7484 BX	Isuzu	Gemini	4/5/2007	12/5/2007
				0246 AE	Ford	Escort	21/1/2007	25/1/2007
				3844 DM	Mazda	626	6/9/2007	7/11/2007
3033	Lily, W	F	26/3/1987	7777 DR	Toyota	Corona	1/1/2007	1/7/2007
•								
•								
•								
8989	Bush, T	M	8/12/1977	8888 CA	Honda	Accord	4/11/2007	7/11/2007

The relation in Standard Notation is as follows:

HiredCars (ClientNumber, ClientName, Gender, DateOfBirth,  
M/VRegistration, Make, Model, DateHired, DateReturned)

- (a) Name and describe a suitable validation check for THREE fields of the HiredCars relation. All your validation checks must be different. [ 6 marks]
- (b) What makes the table un-normalised? [ 2 marks]
- (c) What is meant by the term normalisation? [ 2 marks]
- (d) When the data in Table 1 are fully-normalised, three relations, Client, MotorVehicle and RentalDetail are formed. Using Standard Notation, write the 3NF for TWO of these relations. [10 marks]

**Total 20 marks**

6. A group of IT students write three papers for the end-of-year examination. Their teacher uses the spreadsheet shown below to calculate their grades.

	A	B	C	D	E	F	G	H	I
1	ABC ACADEMY								
2									
3	Results for Information Technology Examination 2004 - 2005								
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5									
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11	Bird, L	112		85		57			
12	Brown, J	48		37		22			
13	....	....		....		....			
14	....	....		....		....			
15									

The raw score of each paper is to be scaled and then added to obtain a student's total score. The total score is out of 100, no decimal places are allowed. **There are 35 students in the group.**

Grades are awarded as follows:

- A = Total mark of 80 and above
- B = Total mark of 65 – 79
- C = Total mark of 50 – 64
- D = Total mark under 50

- (a) Other than general formatting features such as bold and font size, state FIVE spreadsheet features that the teacher used in DEVELOPING the worksheet. [ 5 marks]
- (b) The teacher wishes to know the number of students receiving each of the grades, A to D. Suggest a built-in function that you could use to generate the correct results. Justify your response. [ 4 marks]
- (c) Explain how the results obtained from (b), may be generated and presented on the teacher's worksheet. Clearly indicate the cell locations you would use to present this information. [ 5 marks]

GO ON TO THE NEXT PAGE

Client Number	Client Name	Gender	Date of Birth	M/V Registration	Make	Model	Date Hired	Date Retured	
1024	Ivy, C	M	20/10/1945	8066 AJ	Ford	Capri	2/2/2007	1/3/2007	
				1645 AD	Toyota	Prado	15/5/2007	14/8/2007	
2256	Rose, R	F	2/1/1956	7484 BX	Isuzu	Gemini	4/5/2007	12/5/2007	
				0246 AE	Ford	Escort	21/1/2007	25/1/2007	
				3844 DM	Mazda	626	6/9/2007	7/11/2007	
3033	Lily, W	F	26/3/1987	7777 DR	Toyota	Corona	1/1/2007	1/7/2007	
•									
•									
•									
8989	Bush, T	M	8/12/1977	8888 CA	Honda	Accord	4/11/2007	7/11/2007	

**FORM TP 2009216**



TEST CODE **02229032**

MAY/JUNE 2009

**CARIBBEAN EXAMINATIONS COUNCIL**  
**ADVANCED PROFICIENCY EXAMINATION**  
**INFORMATION TECHNOLOGY**

**UNIT 2 – PAPER 03/2**

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

**12 JUNE 2009 (a.m.)**

**INSTRUCTIONS TO CANDIDATES**

This paper consists of THREE questions.

Answer ALL questions.

The following THREE questions are based on an IT problem that you have researched.

1. With reference to any IT problem that you have researched, answer the following questions.
  - (a) Write a problem statement which can be the basis for developing a solution. [ 2 marks]
  - (b) Identify TWO tools that you would use to assist you to thoroughly analyse the problem identified in (a). Justify your choices. [ 6 marks]
  - (c) Discuss ONE limitation of EACH tool identified in 1 (b) that should be considered when analysing the problem. [ 6 marks]
  - (d) After the analysis of the problem, outline the steps that should be taken, highlighting how these steps will assist you in determining a solution to the problem. [ 6 marks]

**Total 20 marks**

2. Many persons use IT tools to assist them in implementing solutions to problems. Based on the problem identified in Question 1, answer the following questions.
  - (a) Identify TWO software applications that you would use to solve the problem. [ 2 marks]
  - (b) For EACH of the TWO software applications identified in 2 (a), list FOUR features other than formatting, that you would use in implementing your solution. [ 8 marks]
  - (c) For any FOUR features listed in 2 (b), justify your choice of these features. [ 8 marks]
  - (d) Discuss a limitation of ONE of the software applications identified in 2 (a). [ 2 marks]

**Total 20 marks**

3.
  - (a) Discuss THREE issues that you should consider before implementing the solution to your problem. [ 9 marks]
  - (b) For EACH of TWO of the issues identified in 3 (a), explain a strategy that could be employed to address the issue. [ 6 marks]
  - (c) Identify TWO human computer interfaces (HCI) that you could be used in implementing the solution to your problem. [ 2 marks]
  - (d) Give THREE reasons for your choice of human computer interfaces (HCI). [ 3 marks]

**Total 20 marks**

**END OF TEST**

**FORM TP 2010205**



TEST CODE **02129020**

MAY/JUNE 2010

**CARIBBEAN EXAMINATIONS COUNCIL  
ADVANCED PROFICIENCY EXAMINATION**

**INFORMATION TECHNOLOGY**

**UNIT 1 – PAPER 02**

*2½ hours*

**12 MAY 2010 (a.m.)**

**INSTRUCTIONS TO CANDIDATES**

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

## **SECTION I – FUNDAMENTALS OF INFORMATION TECHNOLOGY**

**Answer ALL questions.**

1. Information processing refers to the transforming of data into information through the use of computers and other technologies.
  - (a) Information Technology (IT) is one of the five major computing disciplines. List THREE other disciplines of Computing. **[3 marks]**
  - (b) The local tourism authority of a Caribbean country plans to use questionnaires to identify the leisure preferences of the citizens. Their responses will be processed by an automated information system and the findings presented to tourism officials.
    - (i) Suggest THREE data capture methods that could be used for entering the data collected on the questionnaires. **[3 marks]**
    - (ii) For EACH method identified in (b) (i), explain why it is suitable to capture the data on the questionnaire. **[3 marks]**
    - (iii) Assume that the questionnaire was designed in a way which allowed respondents to give their answers in ‘free text’ format. Give TWO problems that might occur when entering ‘free text’ format. **[2 marks]**
    - (iv) You are asked to make changes to the questionnaire to eliminate or minimize the problems given in (b) (iii). Suggest TWO ways, other than ‘free text’, in which respondents could be allowed to give their answers to questions. **Justify your response.** **[4 marks]**

**Total 15 marks**

2. The Internet gives users access to global information and instant communication. Access can occur anytime from a computer in any location.
- (a) Other than the World Wide Web, name THREE other services that the Internet offers to individuals. **[3 marks]**
- (b) Some households use dial-up connections to access the Internet. Discuss TWO high-speed broadband connections that a householder or small business may use to access the Internet. **[6 marks]**
- (c) The CEO of a multinational company is concerned about the rising costs of office accommodation for staff. In discussions with colleagues, he was told about a telecommunication technology that would allow staff to work from home, but still be in contact with their office using computers.
- (i) Propose a telecommunication strategy that the CEO could implement, which would allow the staff to work at home. **[1 mark ]**
- (ii) Other than the computer, list THREE Information Technology tools or services that would be required by an employee, working from home, to connect to the company's network via the Internet. **[3 marks]**
- (iii) An employee wishes to work on a word-processing document that is stored on a file server at the office. The employee prefers to download the document to her computer at home. Which Internet service can be used? **Justify your response.** **[2 marks]**

**Total 15 marks**

3. Organizations and individuals use information to improve the quality of their decision making. Inadequate or poor-quality information is likely to lead to bad decisions.
- (a) Explain what is meant by the term ‘knowledge’ in the context of information technology. **[2 marks]**
- (b) Using an example, explain how EACH of the following characteristics of information could aid in decision making.
- (i) Accuracy
  - (ii) Completeness
  - (iii) Timeliness
- (c) Information may be categorized in a number of ways. **Figure 1** shows a table of some categories of information. **[6 marks]**

<b>Category</b>	<b>Type of Information</b>	<b>Explanation</b>
SOURCE	Internal	Information generated from data produced within the entity
	External	Information generated from data produced outside the entity
NATURE	Quantitative	Information largely or wholly numeric
	Qualitative	Information largely or wholly text based
LEVEL	Strategic	Information used by top executives to aid in decision-making
	Tactical	Information used by middle managers to aid policy implementation
	Operational	Information used by supervisors or junior managers to aid day-to-day operations
TIME	Historical	Information relating to events, transactions, etc that occurred in the past
	Current	Information relating to ongoing or now events, transactions, etc
	Future	Information relating to events, transactions, etc that are to come, e.g. information from forecasting
USE	Planning	Information used to make strategies about future needs
	Control	Information used to monitor current procedures and to take corrective action when necessary
	Decision	Information used to support decision making
STRUCTURE	Disaggregated	Information presented with data items intact
	Aggregated	Information summarized to make it more concise

**Figure 1**

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- (i) Using the category ‘LEVEL’ in the table in Figure 1, give ONE example of the **type of information** used at EACH level. [3 marks]
- (ii) A purchase order is produced within a company. Using ANY FIVE **categories** in Figure 1, state the **type of information** to be found on the purchase order for EACH of the categories selected. [5 marks]
- (iii) Another category, FORM, is to be added to the table. One **type of information** in this category is ‘Written’, with the explanation being “information presented in the written format”. For this new category, suggest TWO other **types of information**, and an explanation for EACH of these. [4 marks]

**Total 20 marks**

## **SECTION II – INFORMATION TECHNOLOGY SYSTEMS**

**Answer ALL questions in this section.**

4. Information Technology systems typically have four major components: hardware, software, network and users.
- (a) Without software, a hardware device will not function. A new scanner is supplied with a set of drivers, along with the OCR software, on a CD-ROM.
- (i) State THREE functions of a scanner driver. [3 marks]
- (ii) Suggest, with explanation, ONE reason why the set of drivers is not supplied on a floppy diskette. [2 marks]
- (iii) Discuss TWO other methods that could be used for supplying the software. [4 marks]
- (b) To safeguard their Information Technology systems, all employees of a company have an 8-character password to access the computer network. A password is an example of a logical control access method.
- (i) Suggest TWO rules that an employee should follow when creating a robust password. [2 marks]
- (ii) Explain TWO physical control access methods that the company could use to restrict access to the room in which servers and telecommunication cabinets are located. [4 marks]

**Total 15 marks**

5. Individuals and companies use Information Technology systems daily. The software component is typically built by developers.

(a) During the development life cycle of an information system, there is the need for agreed deliverables such as test plans that are produced at the design stage. Give THREE other examples of deliverables, and state the **stage** in the development life cycle at which EACH would be produced. **[6 marks]**

(b) The human computer interface (HCI) for an Information Technology system that is to be used by the general public has to be chosen carefully. One example of where menus are used as a HCI is with mobile telephones.

(i) State, with explanation, ONE other situation where menus are used as the main feature of the HCI. **[3 marks]**

(ii) A hotel offers bookings via the Internet using an online reservation form. Other than menus, suggest THREE features of a graphical user interface (GUI), giving ONE advantage of EACH feature that would make the booking process simple and user friendly. **[6 marks]**

**Total 15 marks**

6. Computer networks are an integral part of life in the 21st century. The Internet is an example of a network.

(a) Define the term ‘protocol’ in relation to networking. **[2 marks]**

(b) List THREE protocols that are associated with the Internet. **[3 marks]**

(c) Explain why protocols are important for communication over the Internet. **[3 marks]**

(d) Discuss the differences between a local area network (LAN) and the Internet in terms of the following:

(i) Reach

(ii) Type of connection

(iii) Speed of data transmission

**[6 marks]**

(e) In a school’s computer lab, computers are connected to a wireless local area network (LAN) and the Internet. The wireless LAN is a star network. Students can print their work, store files on a server and access the Web. Draw a **labelled** diagram of the LAN showing at least THREE computers and other features of the LAN. **[6 marks]**

**Total 20 marks**

### **SECTION III – INFORMATION AND PROBLEM-SOLVING**

**Answer ALL questions in this section.**

7. People are involved in problem-solving activities every day.
- (a) Explain the concept of problem solving in the context of Information Technology. **[2 marks]**
- (b) An interview is one of the instruments (tools) that can be used to gather data in the analysis stage of problem solving. Name ONE other instrument that can be used in this stage. **[1 mark ]**
- (c) Discuss ONE advantage and ONE disadvantage of the instrument named in (b) when compared with interviews. **[6 marks]**
- (d) The Board of Governors of a tertiary institution decided to open a second campus in another part of the island. To aid in the decision making on where to locate the campus, the Board will require certain pieces of information. Examine the following pieces of information, and for EACH, state whether it is cosmetic, desirable or essential. **Justify your response.**
- (i) There are restaurants, bars and a botanical garden nearby.
- (ii) The buildings will be painted green.
- (iii) The main bus terminal is one mile from the proposed site. **[6 marks]**

**Total 15 marks**

8. Algorithms are blueprints to solving problems and are used by programmers when developing computer programs.

- (a) Identify THREE ways of representing algorithms. **[3 marks]**
- (b) For any TWO ways identified in (a), discuss the features of EACH way of representing an algorithm. Your response should include an example and an advantage of using the method of representation. **[6 marks]**
- (c) Consider the algorithm shown in **Figure 2** and answer the following questions.

```
Prompt user to enter the value of X  
Input X  
Y = 1  
Z = 1  
While Y ≠ X  
    Z = Z * Y  
    Y = Y + 1  
Endwhile  
Display X, Y, Z
```

**Figure 2**

- (i) Assume that the user entered 5 at the prompt, what is the value of X, Y and Z when the algorithm in **Figure 2** terminates? **[4 marks]**
- (ii) Rewrite the algorithm to perform the iteration 10 times without asking the user to enter a value for X. **[2 marks]**

**Total 15 marks**

9. Programming is the development and maintenance of instructions to a computer in a computer language. As the System Development Life Cycle guides Information Technology professionals through Information Technology systems development, the program development cycle guides programmers through the development of computer programs.
- (a) State THREE stages of the program development cycle. [3 marks]
- (b) Explain the term ‘control structures’. [2 marks]
- (c) Discuss THREE control structures that a programmer might use to implement tasks that a program is to perform. Your response should clearly highlight the significant differences among the control structures. [9 marks]
- (d) A procedural programming approach to problem solving is most suited in situations that require the use of a single algorithm that is applicable to many different sets of data. For example, calculating the account balances of bank customers, regardless of the amounts deposited or withdrawn by each customer.
- (i) Describe TWO other situations in which a procedural programming paradigm would be MOST appropriate. [4 marks]
- (ii) Which programming paradigm is MOST suited to map routes using cities and streets? **Justify your response.** [2 marks]

**Total 20 marks**

**END OF TEST**

**FORM TP 2010206**



TEST CODE **02129032**

MAY/JUNE 2010

**CARIBBEAN EXAMINATIONS COUNCIL  
ADVANCED PROFICIENCY EXAMINATION**

**INFORMATION TECHNOLOGY**

**UNIT 1 – PAPER 03/2**

*1½ hours*

**07 JUNE 2010 (p.m.)**

**INSTRUCTIONS TO CANDIDATES**

**This paper consists of THREE questions.**

**Answer ALL questions.**

**Answer ALL questions.**

1. With reference to a problem that you have researched, answer the following questions.
  - (a) Write a problem statement that can be the basis of developing an Information Technology based solution. **[3 marks]**
  - (b) Briefly discuss TWO causes of the problem identified in 1 (a). **[4 marks]**
  - (c) Other than surveys, describe TWO tools or instruments that you can use for data gathering in order to properly analyse the problem. **[4 marks]**
  - (d) With reference to ONE of the instruments described in 1 (c), discuss TWO advantages and ONE disadvantage of this instrument when compared with surveys. **[9 marks]**

**Total 20 marks**

2. (a) Based on the problem statement in question 1 (a), discuss THREE possible solutions. **[9 marks]**
- (b) State FIVE concerns that you should consider to determine an optimal solution. **[5 marks]**
- (c) For any THREE of the concerns stated in question 2 (b), discuss the implication/impact of EACH for one of your possible solutions. **[6 marks]**

**Total 20 marks**

3. Once the solutions have been evaluated, one should be selected as the optimal or MOST feasible solution.

(a) Describe the approach that you would take in order to select the most feasible solution. **[4 marks]**

(b) It is said that “the selection of the optimal solution is based on a prevailing factor such as cost at the given point in time”. Discuss this statement. **[4 marks]**

(c) You are required to produce a report which includes the problem statement and analysis of the possible solutions.

(i) Which software application would be MOST appropriate? **Justify your response.** **[3 marks]**

(ii) Other than general formatting features such as ‘copy and paste’, describe THREE features of the software application that you would use to produce appropriate files for storing data and interfaces to access these data. **[9 marks]**

**Total 20 marks**

**END OF TEST**

**FORM TP 2010208**



TEST CODE **02229020**

MAY/JUNE 2010

**CARIBBEAN EXAMINATIONS COUNCIL  
ADVANCED PROFICIENCY EXAMINATION**

**INFORMATION TECHNOLOGY**

**UNIT 2 – PAPER 02**

*2½ hours*

**03 JUNE 2010 (p.m.)**

**INSTRUCTIONS TO CANDIDATES**

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

## SECTION I – INFORMATION MANAGEMENT

**Answer ALL questions.**

1. The University of the East Indies manually manages large volumes of data related to student registration. These data include the student's name, identification number, address, phone number, courses for which the student is registered, lecturers of those courses and other data.

Information Technology consultants have advised the University to implement a computerized system to manage their data.

- (a) Explain TWO **uses** of computer-based storage solutions, such as databases, that would make converting to a computerized system beneficial for the University. **[4 marks]**
- (b) Discuss THREE reasons why it is important to use the database approach instead of the traditional file system approach, when implementing the computerized system. **[6 marks]**
- (c) Explain the purpose of a primary key in a database. **[2 marks]**
- (d) Using standard notation, show the '**student table**' for the following attributes of a student.
- StudentName
  - StudentAddress
  - StudentID
  - CourseID
- [3 marks]**

**Total 15 marks**

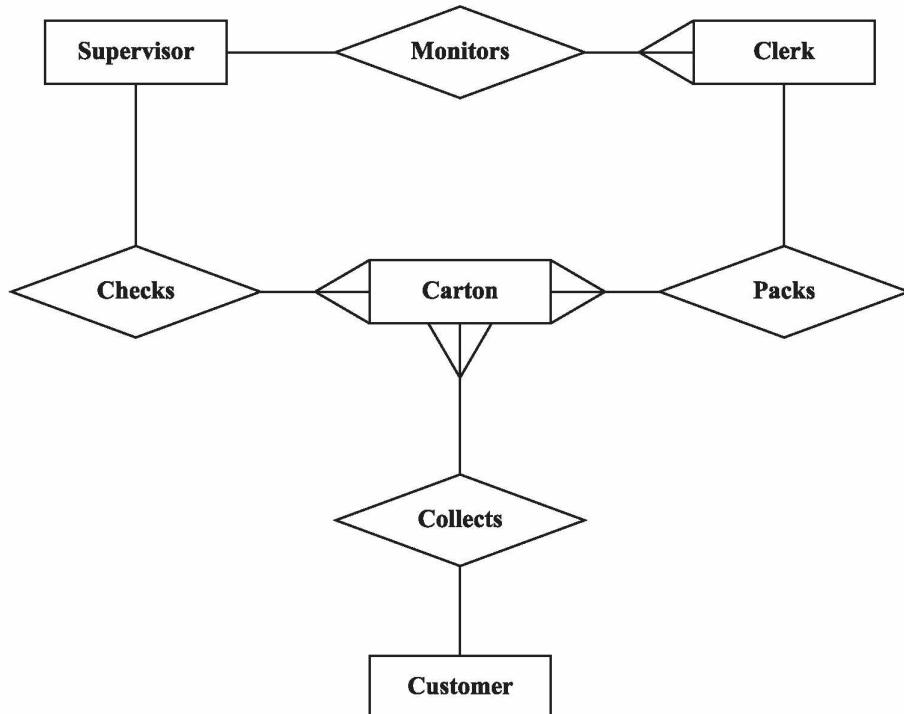
2. At a recent conference on emerging technologies, a presenter made the two following statements.

- (i) ***In general, a file today is larger than a file twenty years ago.***
  - (ii) ***In general, storage is cheaper today than it was twenty years ago.***
- (a) Examine EACH statement and explain, giving ONE example in each case, why the statement is valid. **[6 marks]**
- (b) The principal of a certain high school has implemented strategies for conserving paper in the school. Students are now required to submit their assignments in softcopy rather than on paper.
- (i) State THREE ways in which the assignment may be submitted in softcopy. **[3 marks]**
  - (ii) State, **with reason**, the MOST appropriate storage medium for students to use when submitting an assignment that consists of text and several pictures. The teacher has indicated that storage devices will not be returned to the student. **[3 marks]**
- (c) Explain, using a suitable example, the impact on an organization if research data is not available in a timely manner. **[3 marks]**

**Total 15 marks**

3. Both Data Flow Diagrams (DFD) and Entity Relationship Diagrams (ERD) are means of modelling different aspects of a system.

- (a) Distinguish between these TWO types of modelling techniques. [4 marks]
- (b) **Figure 1** shows an entity relationship diagram that describes the business environment of a certain shipping company.



**Figure 1**

- (i) Explain the term ‘cardinalities’. [2 marks]
- (ii) Explain how the shipping company conducts its business, based on the entity relationship diagram given in **Figure 1**. [8 marks]
- (iii) Modify the entity relationship diagram in **Figure 1**, to include the fact that a customer may make payments to various clerks and a clerk may receive payments from several customers. [3 marks]
- (c) Explain the significance of normalization in a database solution. [3 marks]

**Total 20 marks**

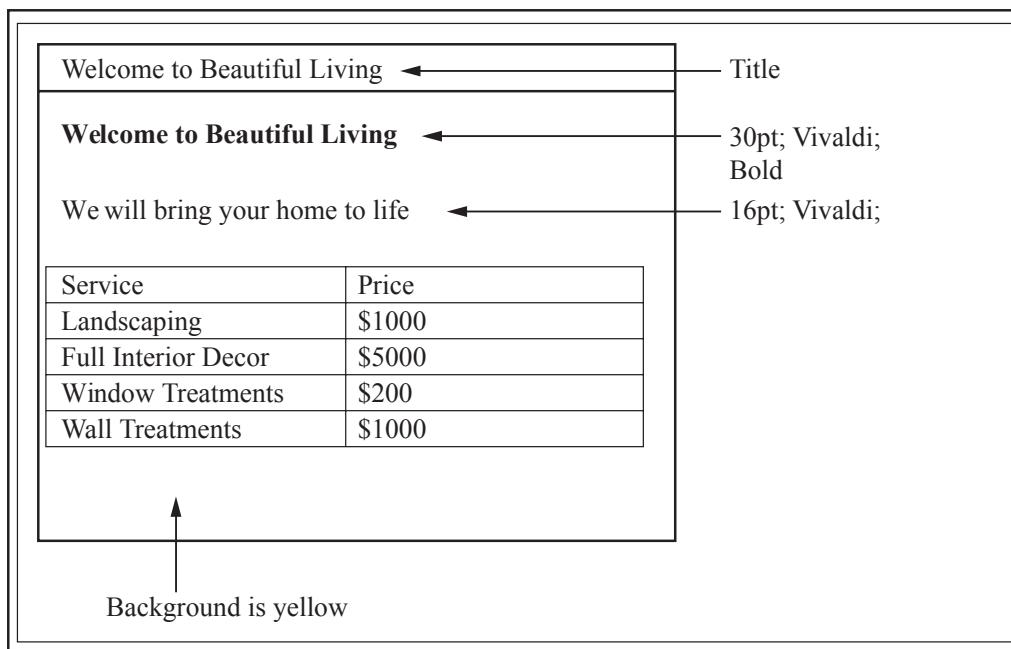
**SECTION II – USE OF INFORMATION TECHNOLOGY TOOLS**

**Answer ALL questions.**

4. There are several categories of software tools and each is most beneficial when used to solve the types of problems for which it has been designed.
- (a) John has begun his Information Technology project using a spreadsheet solution, but is concerned that he should have used a database solution instead. You are required to help him decide by explaining **THREE** features that distinguish a database solution from a spreadsheet solution. **[6 marks]**
- (b) Three types of productivity software are Spreadsheets, Database Management Systems and Word Processors. For EACH productivity software, give **ONE** example of a situation in which its use is appropriate. **[3 marks]**
- (c) Explain **THREE** factors that you would consider important when critically evaluating the sources of information. **[6 marks]**

**Total 15 marks**

5. Beautiful Living is an Interior Decorating Company that has contracted you to write the HTML code for their web-page. **Figure 2** is a sketch of the web-page that they would like to develop.



**Figure 2**

- (a) Write the HTML code to produce the web page illustrated in **Figure 2**. [12 marks]
- (b) State the communication protocol used for the following services:
- (i) General Transfer of Files
  - (ii) Transfer of Web Pages
  - (iii) Sending Electronic Mail [3 marks]

**Total 15 marks**

6. The use of Information Technology has become a common approach in responding to many of our day-to-day challenges.
- (a) Mark has recently completed a one-month tour of the Caribbean and is dissatisfied with the difficulty he experienced in discovering the attractions. He would like to create a forum through which travellers could share their experiences with each other, using the Internet.
- (i) Advise Mark on the MOST appropriate type of web-based service to use for this project. **Justify your recommendation.** [3 marks]

- (ii) Using the web-based technology that you have identified in (a)(i), explain THREE concerns of which users should be aware. [6 marks]
- (b) Some real estate developers are now building homes that contain intelligent appliances. Explain how an intelligent refrigerator can be beneficial to a homeowner. [2 marks]
- (c) Internet Telephony or Voice Over IP (VOIP) is becoming an increasingly popular means of communication.
- (i) Explain the concept of Internet Telephony. [2 marks]
- (ii) Discuss ONE advantage and ONE disadvantage of this technology. [4 marks]
- (d) Distinguish between an Informational Website and an Advocacy Website. [3 marks]

**Total 20 marks**

### **SECTION III – SOCIAL, ORGANISATIONAL AND PERSONAL ISSUES**

**Answer ALL questions.**

7. The proliferation of Information Technology utilisation has impacted our society in many ways.
- (a) Discuss ONE impact of the widespread use and availability of Information Technology on our society in the areas of:
- (i) Commercial transactions  
(ii) Legal system  
(iii) Education [6 marks]
- (b) Explain EACH of the following computer crimes:
- (i) Spoofing  
(ii) Phishing  
(iii) Hacking [3 marks]
- (c) Discuss any TWO health problems associated with the use of technology in our society, clearly stating their causes and the methods of preventing these problems. [6 marks]

**Total 15 marks**

8. Information systems (IS) auditors examine the infrastructure of companies to assess and minimize risks and streamline the operations associated with their information systems. XYZ Limited has brought in an IS auditor to review aspects of their information systems, including their disaster recovery plan.

- (a) What is a ‘disaster recovery plan’? [3 marks]
- (b) XYZ Limited has installed a stand-by generator in response to the frequent hurricanes in the country.
- (i) Explain the function of a stand-by generator in the event of a disaster such as a hurricane. [2 marks]
- (ii) Discuss TWO additional steps that should be taken by XYZ Limited in preparation for the possibility of a disaster. [4 marks]
- (c) The IS auditor notices several instances of software piracy in the company. He discovers that it occurs due to the high cost of the software. Explain how EACH of the following options may help XYZ Limited discontinue the practice of pirating software.
- (i) Open Source Software
- (ii) Freeware
- (iii) Shareware [6 marks]

**Total 15 marks**

9. (a) Sharon is the systems administrator at Mocking Bird High School. She has just received her order for educational software to be installed on machines in the computer lab.

- (i) What is an ‘End User License Agreement (EULA)?’ [2 marks]
- (ii) Discuss THREE pieces of information that you can find in the EULA. [6 marks]
- (iii) Discuss, using an example, the risk to the school if Sharon simply clicks the “*I have read and agreed*” button, without actually reading the EULA. [3 marks]
- (b) P2P (peer-to-peer) software allows file sharing across the Internet. Using this type of software, people are able to share e-books, music, software and even movies.
- (i) Discuss TWO challenges that have arisen from the use of these types of software. [6 marks]
- (ii) For ONE of the challenges identified in (b)(i) discuss a possible solution. [3 marks]

**Total 20 marks**

**FORM TP 2010209**



TEST CODE **02229032**

MAY/JUNE 2010

**CARIBBEAN EXAMINATIONS COUNCIL  
ADVANCED PROFICIENCY EXAMINATION**

**INFORMATION TECHNOLOGY**

**UNIT 2 – PAPER 03/2**

*1½ hours*

**11 JUNE 2010 (a.m.)**

**INSTRUCTIONS TO CANDIDATES**

**This paper consists of THREE questions.**

**Answer ALL questions.**

**Answer ALL questions.**

1. With reference to an Information Technology problem which you have researched, answer the following questions.

- (a) Write a problem statement which can be the basis of developing a solution. **[2 marks]**
- (b) Identify TWO tools that you could use to assist you in performing a thorough analysis of the problem stated in (a). Provide clear justification for your answer. **[6 marks]**
- (c) For EACH of the TWO tools identified in 1 (b), specify ONE advantage and ONE disadvantage. **[4 marks]**
- (d) Based on the facts that you gathered in your research using the tools stated above, briefly explain AT LEAST TWO causes of the problem. **[2 marks]**
- (e) After the analysis of the problem, outline the steps that should be taken, highlighting how these steps will assist you in solving the problem. **[6 marks]**

**Total 20 marks**

2. The introduction of an Information Technology solution usually has an impact on the organization in which it is implemented.

- (a) Summarize your solution to the problem stated in Question 1 (a). **[4 marks]**
- (b) For your solution described in 2 (a), discuss TWO of the likely impacts it may have on the organization. **[4 marks]**
- (c) State the tools that you will use to implement the solution stated in 2 (a) and for EACH tool, explain the main features that you will use. Provide justification for the use of the features mentioned. **[6 marks]**
- (d) Describe the human computer interface (HCI) that will be appropriate for your solution. Provide a sketch. **[6 marks]**

**Total 20 marks**

3. Your working solution should have included at least three entities.
- (a) State THREE entities. [3 marks]
- (b) Draw an entity relation diagram to illustrate the relationships between these entities. [6 marks]
- (c) Describe EACH entity using standard notation. [6 marks]
- (d) Write ONE query using Structured Query Language (SQL) including AT LEAST TWO of your tables which would be relevant to the solution and explain the function of the query to your solution. [3 marks]
- (e) State ONE security feature and ONE integrity-check which you would implement in your solution. [2 marks]

**Total 20 marks**

**END OF TEST**

**FORM TP 2011209**



TEST CODE **02129020**

MAY/JUNE 2011

**CARIBBEAN EXAMINATIONS COUNCIL  
ADVANCED PROFICIENCY EXAMINATION**

**INFORMATION TECHNOLOGY**

**UNIT 1 – PAPER 02**

*2½ hours*

**02 MAY 2011 (p.m.)**

**INSTRUCTIONS TO CANDIDATES**

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

## **SECTION I – FUNDAMENTALS OF INFORMATION TECHNOLOGY**

**Answer ALL questions.**

- 1.** Data, information and knowledge are important aspects of a computerized system.

- (a) Using a suitable example, explain EACH of the following terms:

(i) Data **[2 marks]**

(ii) Information **[2 marks]**

(iii) Knowledge **[2 marks]**

- (b) (i) Distinguish between ‘qualitative data’ and ‘quantitative data’. **[2 marks]**

(ii) Explain which type of data (qualitative or quantitative) MOST appropriately describes data collected from an interview. **[1 mark ]**

- (c) A high school wishes to develop a computerized registration system for its students.

With respect to this system, discuss ONE example of data and ONE example of information, describing fully how EACH may be appropriately represented in the system.

**[6 marks]**

**Total 15 marks**

- 2.** Paul has been contracted by the Ministry of Education in his country to conduct research in order to assess the level of Information and Communication Technology usage in the country.

- (a) State THREE sources of information that would be appropriate for Paul’s research.

**[3 marks]**

- (b) For EACH information source identified in (a) above

(i) state the information which may be retrieved **[3 marks]**

(ii) identify a computer-based tool that may be used to assist in its retrieval. **[3 marks]**

- (c) (i) State THREE characteristics of information sources. **[3 marks]**

(ii) Explain EACH of the characteristics stated in (c) (i) above. **[3 marks]**

**Total 15 marks**

3. (a) Telecommunications has been utilized greatly in performing many everyday tasks. The Internet is one of the most popular applications used in telecommunications.
- (i) Define the term 'Internet'. **[2 marks]**
- (ii) Explain EACH of the following telecommunication terms:
- a) Transmission medium **[2 marks]**
- b) Modulation **[2 marks]**
- c) Bandwidth **[2 marks]**
- (iii) Discuss the impact of the Internet on EACH of the following:
- a) Education **[2 marks]**
- b) Health **[2 marks]**
- c) Human Resource Management **[2 marks]**
- (b) **With the aid of a labelled diagram**, explain the concept of automated information processing. **[6 marks]**

**Total 20 marks**

## SECTION II – INFORMATION TECHNOLOGY SYSTEMS

**Answer ALL questions.**

4. (a) List THREE **major** components of an information technology system. [3 marks]
- (b) Using an automated teller machine (ATM) system, describe how input, output and storage devices can be used. [6 marks]
- (c) Using a suitable example, explain EACH of the following types of application software:
- (i) Management Information Systems [3 marks]
- (ii) Expert Systems [3 marks]

**Total 15 marks**

5. The System Development Life Cycle (SDLC) is an important aspect of the development of information systems.
- (a) Use a labelled diagram to illustrate the stages of the SDLC. [7 marks]
- (b) Various tools are used at each stage of the SDLC. For EACH of the tools specified below, state at which stage it would be most appropriately used, clearly explaining its function at that stage.
- (i) Gantt Chart [2 marks]
- (ii) Entity-Relationship Diagram [2 marks]
- (iii) Interview [2 marks]
- (c) Explain why training is an important part of the system development process. [2 marks]

**Total 15 marks**

6. A network is a collection of computers interconnected by various transmission media. Transmission media may be wired or wireless.
- (a) Explain TWO differences between a Local Area Network (LAN) and a Wide Area Network (WAN). **[4 marks]**
- (b) State TWO examples of EACH of the following:
- (i) Wired transmission media **[2 marks]**
- (ii) Wireless transmission media **[2 marks]**
- (c) For ONE of the wired and ONE of the wireless transmission media named in (b) above, discuss an application of its use in a school environment. **[4 marks]**
- (d) Distinguish between EACH of the following pairs of networking concepts:
- (i) Intranet and Extranet **[4 marks]**
- (ii) MAN and VPN **[4 marks]**

**Total 20 marks**

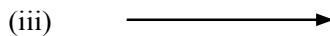
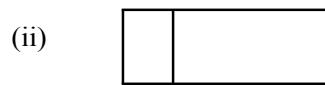
### **SECTION III – INFORMATION AND PROBLEM-SOLVING**

**Answer ALL questions.**

7. The problem-solving process is essential in the development of Information Technology (IT) solutions. In a certain organization, the IT manager has decided to use this process to create a solution for automating the tasks performed by the human resource department.
- (a) State FIVE stages of the problem-solving process. **[5 marks]**
- (b) Discuss TWO pieces of information that would be relevant to the IT manager. Your discussion should include possible sources of information and the purpose of the information in the problem-solving process. **[6 marks]**
- (c) Discuss TWO criteria that the IT manager should consider in deciding if a piece of information can be used and how it should be used. **[4 marks]**

**Total 15 marks**

8. A Dataflow Diagram (DFD) is an important software engineering tool.
- (a) Explain the purpose of a DFD in the software engineering process. **[3 marks]**
- (b) State the name of EACH of the following DFD symbols:



**[4 marks]**

- (c) A payroll system involves the payroll clerk entering the hours worked by weekly paid employees. This results in the calculation of the net pay and the printing of payslips. The payslips are given to the employees and the payroll database is updated.

Draw a context diagram for the payroll system described above. **[8 marks]**

**Total 15 marks**

9. Xavier has been asked to write a program to determine the average score obtained by students in the Information Technology class.

- (a) Identify THREE programming paradigms, stating ONE example of EACH. [6 marks]
- (b) Explain why it is beneficial for Xavier to write an algorithm BEFORE he begins to write the program. [2 marks]
- (c) Draw a flow chart for Xavier's program.

Assume:

- (i) The score of each student will be entered one at a time.
  - (ii) The user will indicate by entering '-1' as a score that there are no more scores to be entered. [6 marks]
- (d) When Xavier implemented his solution, the program did not stop requesting grades after the user entered '-1'.
    - (i) Explain whether this is a semantic or syntactic error. [3 marks]
    - (ii) Discuss the MOST likely cause of the error and how it could be resolved. [3 marks]

**Total 20 marks**

**END OF TEST**

**FORM TP 2011210**



TEST CODE **02129032**

MAY/JUNE 2011

**CARIBBEAN EXAMINATIONS COUNCIL  
ADVANCED PROFICIENCY EXAMINATION**

**INFORMATION TECHNOLOGY**

**UNIT 1 – PAPER 03/2**

*1½ hours*

**06 JUNE 2011 (p.m.)**

**INSTRUCTIONS TO CANDIDATES**

**This paper consists of THREE questions.**

**Answer ALL questions.**

**Answer ALL questions.**

1. With reference to an Information Technology-based problem that you have researched, answer the following questions.
  - (a) Write a problem statement which can be the basis of developing a solution to the problem. **[2 marks]**
  - (b) Discuss TWO causes of the problem identified in (a) above. **[4 marks]**
  - (c) Defining the problem and analysis of the problem are two steps in the problem solving process. Explain ONE **other** step in the problem solving process. **[2 marks]**
  - (d) Analysing the problem includes gathering data from the intended user(s) of the system. For each scenario below, identify the MOST appropriate data-gathering instrument and **justify your choice**.
    - (i) You require the answers to 15 questions intended to gather quantitative data from 100 users in a single company.
    - (ii) You require feedback from a manager on the limitations of the current manual system being used in his department.
    - (iii) You wish to see how users interact with the current system on a day-to-day basis.**[6 marks]**
  - (e) For EACH of the three instruments mentioned in (d) above, discuss ONE limitation which you would need to consider when analysing the problem. **[6 marks]**

**Total 20 marks**

2. Based on your problem statement in Question 1 (a), you have proposed several solutions, from which an optimal solution will be selected.
  - (a) Explain why it is the practice to propose at least two alternative solutions to a problem. **[2 marks]**
  - (b) For the problem statement given in Question 1 (a), discuss THREE possible solutions. **[9 marks]**
  - (c) Evaluate EACH of the solutions proposed in 2 (b) above. **[9 marks]**

**Total 20 marks**

3. Once the solutions have been evaluated, the developer needs to select the most feasible solution.
- (a) Select the MOST feasible of the THREE solutions presented in Question 2 (b). **[1 mark]**
- (b) Justify your selection, making reference to ALL of the strategies being recommended in the solution stated in Question 3 (a). **[8 marks]**
- (c) You are expected to present the problem statement, the analysis and the proposed solutions in a document.
- (i) State the type of application software that is MOST appropriate to produce the document for reporting your findings. **[1 mark]**
- (ii) State FOUR features of the application software stated in 3 (c) (i) and indicate how these features would be used in the development of your document. **[8 marks]**
- (d) Your teacher has asked you to present the results of your analysis. State, giving a suitable reason, the MOST appropriate type of application software to accomplish this. **[2 marks]**

**Total 20 marks**

**END OF TEST**

**FORM TP 2011212**



TEST CODE **02229020**

MAY/JUNE 2011

**CARIBBEAN EXAMINATIONS COUNCIL  
ADVANCED PROFICIENCY EXAMINATION**

**INFORMATION TECHNOLOGY**

**UNIT 2 – PAPER 02**

*2½ hours*

**11 MAY 2011 (a.m.)**

**INSTRUCTIONS TO CANDIDATES**

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

**SECTION I – INFORMATION MANAGEMENT**

**Answer ALL questions.**

1. Companies and individuals may use either flat files or databases to store and manage data.
  - (a) Discuss TWO major weaknesses of flat files when used for storing and managing data. **[4 marks]**
  - (b) Distinguish among EACH of the following concepts:
    - (i) Data warehouse **[2 marks]**
    - (ii) Data mart **[2 marks]**
    - (iii) Data mining **[2 marks]**
  - (c) Explain how the Internet and a database can be used by an international retail chain with outlets on five continents, to assist top management in making decisions about products. **[5 marks]**

**Total 15 marks**

2. (a) Name THREE of the symbols that can be used in a data flow diagram (DFD). **[3 marks]**
- (b) A Point of Sale (POS) system in a supermarket operates as follows:
- Each item has a barcode.
  - Data (Item ID, Description, Price) on each item is stored in a database.
  - A cashier scans each item with a barcode reader and enters the quantity for each item to be sold.
  - The total to be paid by the customer is calculated.
  - The customer pays for the items purchased.
  - A detailed receipt is printed and given to the customer.
- (i) Using the system described above, identify:
- a) ONE entity
  - b) ONE datastore
  - c) TWO dataflows **[4 marks]**
- (ii) Draw a Level 1 DFD, **with no more than three processes**, to depict the flow of data in the POS system described above. **[6 marks]**
- (iii) The management of the supermarket has decided to allow some of its loyal customers to pay at the end of the month, rather than at the time when the items are purchased. Suggest ONE change that should be made to the DFD. **Justify your response.** **[2 marks]**

**Total 15 marks**

3. Several database models exist. A network database is one such model.
- (a) Name THREE other types of database models. **[3 marks]**
- (b) Describe any TWO of the database models named in (a) above, giving ONE example of where the model may be appropriately used. **[6 marks]**
- (c) The Computer Science department at a university wishes to store data on students' module results for the certificate and diploma programmes. The data requirements are defined as follows:
- A student is given a unique number.
  - A student has his/her first name and last name recorded.
  - A course module is assigned a code.
  - A module is available each semester of each year.
  - An academic year has two semesters.
  - A student may resit a module, the best results being used to calculate the final grade.
  - The certificate programme comprises three modules.
  - The diploma programme comprises six modules.

The figure below shows the structure of the database and some of the entries.

Student ID	First Name	Last Name	Module Code	Semester Code	Module Score	Programme	Total Mark	Grade
12345	Josh	Nash	CS01 CS01 CS02 CS03 CS04 CS05 CS06	S1/09 S2/10 S1/09 S1/09 S2/10 S2/10 S2/10	65 84 72 79 69 81 70	Cert Dip	235 555	C C
23467	Ann	Johnson	CS01 CS02 CS03	S1/09 S1/09 S1/09	83 85 87	Cert	255	B
24680	Tony	Smith	— —	— —	— —	— —	— —	— —
—	—	—	— —	— —	— —	— —	— —	— —

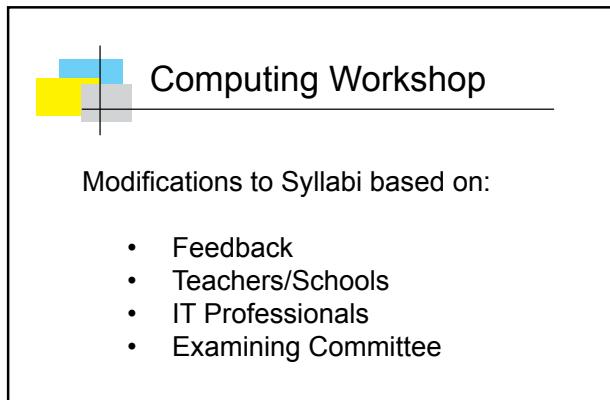
- (i) Other than STUDENT, identify THREE entities named in the requirements listed above. **[3 marks]**
- (ii) When the data in the figure are stored in a fully normalised relational database, three of the tables are **Student**, **ModuleResult** and **StudentGrade**.
  - a) Using standard notation, write the 3NF for the **ModuleResult** relation, ensuring that the primary key attribute(s) is/are underlined. **[3 marks]**
  - b) Draw an Entity-Relationship diagram between the three relations. **[3 marks]**
  - c) The head of the Computer Science department wishes to query the tables for student first name, last name and grade, in descending order, by total marks. State TWO SQL commands that could be used in building the query. **[2 marks]**

**Total 20 marks**

## SECTION II – USE OF INFORMATION TECHNOLOGY TOOLS

**Answer ALL questions.**

4. You are required to develop a multimedia presentation on a topic you have researched.
- (a) State THREE functions of the presentation software that are available for use with a multimedia projector BUT which cannot be used with overhead projection transparencies. **[3 marks]**
- (b) Discuss THREE factors that should be considered when designing effective multimedia presentations. **[6 marks]**
- (c) Software packages such as a presentation software and a spreadsheet have macro capabilities.
- (i) Explain what is meant by the term ‘macro’. **[3 marks]**
- (ii) The figure below is the first slide of a multimedia presentation. The title appears on each of 34 slides.



A macro is to be used to change the title to “Information Technology Workshop” on all 34 slides. Explain how to create and execute the macro, using a macro recorder. The steps should be logically sequenced. **[3 marks]**

**Total 15 marks**

5. There are a variety of hardware and software tools that may be used to access and communicate with remote information sources.
- (a) A student is given a topic to research and is advised to use the Internet to find sources of information. Identify, with reasons, THREE Internet tools that could be used to research the topic. **[6 marks]**
- (b) For EACH scenario below, identify a hardware tool that would be MOST appropriate for a doctor to use to obtain or send the information. State TWO reasons for EACH choice.
- (i) The doctor wishes to have a discussion with a colleague, who is in another building approximately 100 metres away, regarding the symptoms of a patient who is currently in his office. **[3 marks]**
- (ii) The doctor received a telephone call from a consultant to whom he had referred a patient. The consultant wishes to get copies of the laboratory reports of tests which the patient did the previous week. **[3 marks]**
- (iii) The doctor wishes to access research done by doctors in Russia and was told that the information is available through an online library. **[3 marks]**

**Total 15 marks**

6. Companies and individuals refer to a number of criteria to help them select the most appropriate Information Technology (IT) tools to solve real-life problems.

(a) Other than the nature of the solution, list THREE other criteria that may be used to select the IT tools for a given problem. **[3 marks]**

(b) (i) For EACH software package listed below, state the specific task it was designed to perform.

- a) Word Processor
- b) Desktop Publishing
- c) Spreadsheet
- d) Presentation
- e) Database Management

**[5 marks]**

(ii) A school will be having a barbecue at the end of the school year. For THREE of the software packages listed in (b) (i) above, describe FULLY how the use of the package could assist the school with planning the barbecue. **[6 marks]**

(c) For EACH scenario below, identify the MOST appropriate format to present the information. **Justify your choice.**

(i) ZYX Company wishes to present the monthly sales figures for products sold during the 5-year period, 2006 – 2010 to its shareholders at the next annual general meeting. **[3 marks]**

(ii) Chris Bravo told the architect that he wanted a two-storey house with a kitchen, a study, a laundry room, a two-car garage, two patios, an entertainment room with its own bathroom and five bedrooms, each with its own bathroom. All bedrooms with bathrooms should be on the top floor. All other rooms should be downstairs. The architect must submit this information to the Town Planning Department for approval. **[3 marks]**

**Total 20 marks**

### **SECTION III – SOCIAL, ORGANIZATIONAL AND PERSONAL ISSUES**

**Answer ALL questions.**

7. A large government ministry stores sensitive personal information on its computer system. The ministry was advised by an Information Technology consultant to examine the security of the computer system, conduct a risk analysis and devise a plan to reduce the risks.

- (a) The risk analysis revealed the following as areas of potential threats to the company's computer systems.
- Natural disasters
  - Employees
  - Data errors
  - Hardware

For THREE of the threats listed above, state

- (i) how it might be a threat to the company [3 marks]
- (ii) a countermeasure, explaining how the countermeasure could minimize the threat. [6 marks]
- (b) A number of citizens live in small remote villages. The government department, located in the capital, has responsibility for registering birth, death and marriages. The department installed kiosks in the villages to allow the citizens to access its services online. Discuss THREE advantages of providing its services online to these citizens. [6 marks]

**Total 15 marks**

8. Malware via the Internet poses the biggest threat to the security of computer systems and files. These malicious programs act without the user's knowledge and deliberately alter the computer's operations.

- (a) Other than viruses, identify TWO other popular types of malware. [2 marks]
- (b) Distinguish between viruses and EACH of the types of malware identified in (a) above. [4 marks]
- (c) Discuss THREE different precautionary measures that a company could use to combat malware. [6 marks]
- (d) Explain fully ONE mechanism an organization could employ that would govern the actions of its employees regarding their use of its computer systems, and to protect the systems from potential internal threats. [3 marks]

**Total 15 marks**

9. (a) Governments in most countries have passed legislation to safeguard the intellectual property of organisations and individuals. Intellectual property rights include copyrights, patents and trademarks.
- (i) Identify THREE **different** types of works that may be considered intellectual property. [3 marks]
- (ii) Explain EACH of the following pairs of terms, stating ONE similarity, other than forms of intellectual property, and ONE difference between EACH pair:
- Copyright and patent
  - Patent and trademark
- [6 marks]
- (b) Joan submitted a research paper to her professor. After reading the paper, the professor accused her of plagiarism.
- (i) Identify TWO things that Joan could have done in her paper which led the professor to this conclusion. [2 marks]
- (ii) Suggest THREE possible consequences that could result from Joan's act of plagiarism. [3 marks]
- (c) Microchips, computers and application software are being used to meet the needs of individuals. Explain TWO ways in which the technology can help persons who are either visually impaired or without limbs. In your response, clearly state **what** the technology enables the persons to do and **how** they are now able to do it. [6 marks]

**Total 20 marks**

**END OF TEST**

**FORM TP 2011213**



TEST CODE **02229032**

MAY/JUNE 2011

**CARIBBEAN EXAMINATIONS COUNCIL  
ADVANCED PROFICIENCY EXAMINATION**

**INFORMATION TECHNOLOGY**

**UNIT 2 – PAPER 03/2**

*1½ hours*

**10 JUNE 2011 (a.m.)**

**INSTRUCTIONS TO CANDIDATES**

**This paper consists of THREE questions.**

**Answer ALL questions.**

**Answer ALL questions.**

1. With reference to an Information Technology-based problem that you have researched, answer the following questions.
  - (a) Write a problem statement which can be the basis for developing a solution to the problem. **[2 marks]**
  - (b) Discuss THREE causes of the problem identified in (a) above. **[6 marks]**
  - (c) In the analysis of a problem, you may use several data-gathering tools.
    - (i) Name TWO data-gathering tools that may be used in the analysis of the problem. **[2 marks]**
    - (ii) Justify the use of EACH of the tools named in (c) (i). **[4 marks]**
    - (iii) Discuss ONE limitation of EACH of the tools named in (c) (i). **[4 marks]**
  - (d) Outline the steps that you should take, AFTER the analysis of the problem, which will assist you in determining its solution. **[2 marks]**

**Total 20 marks**

2. Based on the Information Technology-based problem identified in Question 1, answer the following questions.
  - (a) Identify TWO software applications that you would use to solve the problem. **[2 marks]**
  - (b) For EACH software application identified in 2 (a), list FOUR features, other than formatting, that you would use in implementing your solution. **[8 marks]**
  - (c) For any FOUR of the features listed in 2 (b), explain how EACH can be used in solving the problem. **[8 marks]**
  - (d) Discuss ONE limitation of ONE of the software applications identified in 2 (a). **[2 marks]**

**Total 20 marks**

3. To ensure the successful implementation of the solution to the problem identified in Question 1, there are areas of concern that should be addressed.

(a) State FOUR different areas of concern, other than financial costs, that must be addressed.

**[4 marks]**

(b) Explain how the areas of concern identified in 3 (a) might impact negatively on the implementation of the solution. Your response should include specific examples.

**[8 marks]**

(c) For EACH area of concern identified in 3 (a), outline a strategy that could minimise any of the negative impacts that might arise.

**[8 marks]**

**Total 20 marks**

**END OF TEST**

**FORM TP 2012209**



TEST CODE **02129020**

MAY/JUNE 2012

**CARIBBEAN EXAMINATIONS COUNCIL  
ADVANCED PROFICIENCY EXAMINATION**

**INFORMATION TECHNOLOGY**

**UNIT 1 – Paper 02**

***2 hours 30 minutes***

**02 MAY 2012 (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 I – FUNDAMENTALS OF INFORMATION TECHNOLOGY**

**Answer ALL questions.**

1. Automated information processing techniques using technologies and tools are critical for working with data.

  - (a) Explain what is meant by ‘information processing’ in the context of information technology. **[2 marks]**
  - (b) A Decision Support System (DSS) is one type of information system used by organizations.
    - (i) State THREE other types of information systems. **[3 marks]**
    - (ii) Explain the MAIN function of ONE type of information system listed in (b) (i) above. **[2 marks]**
  - (c) The Ministry of Health in your country has just completed a survey in six remote communities. Printed questionnaires were administered by trained field workers. The completed questionnaires were returned to the main office for data entry into an automated information system. As the Information Management Officer of the project, you are responsible for ensuring that the data from the questionnaires are entered into the information system.
    - (i) List TWO data capture methods that may be used to enter the data from the questionnaires into the information system. **[2 marks]**
    - (ii) It is possible that data on the questionnaires will be illegible or that data entry clerks may enter incorrect data. Outline THREE ways to ensure that only accurate data are entered and stored in the information system. **[6 marks]**

**Total 15 marks**

2. Information is an important asset for the effective and efficient operation of an organization.

  - (a) For EACH of the following types of information, identify the likely users and the purpose for which the information is used.
    - (i) Strategic **[2 marks]**
    - (ii) Tactical **[2 marks]**
    - (iii) Operational **[2 marks]**

- (b) With reference to an Automated Teller Machine (ATM) system of a commercial bank, state ONE example of EACH type of information described in (a) above. [3 marks]
- (c) A professor prepares a report for delivery at a conference using a presentation tool. He is now unable to attend the conference but will forward the report for viewing by the participants.
- Outline THREE ways in which the presentation may be enhanced for maximum impact in his absence. [6 marks]

**Total 15 marks**

3. Social networking sites, such as Facebook, allow end users to connect with friends and family in real time.
- (a) Apart from chatting, outline THREE other ways in which students and teachers can use social networking sites to enhance the teaching and learning process. [6 marks]
- (b) (i) List TWO hardware components that are required by a computer to connect to the Internet. [2 marks]
- (ii) The development of mobile phones has made it possible to access the Internet from any location. Discuss TWO advantages and TWO disadvantages of using the mobile phone to access the Internet. [8 marks]
- (c) A student is working from an Internet café on a project. Explain how the student may execute EACH of the following tasks:
- (i) Making a video file of size 50 MB immediately available to other students in the class. [2 marks]
- (ii) Accessing a software program on the school's server to complete an assignment. [2 marks]

**Total 20 marks**

## SECTION II – INFORMATION TECHNOLOGY SYSTEMS

**Answer ALL questions.**

4. (a) One desirable feature of the software component of an information technology system is portability. Define the term ‘software portability’. **[2 marks]**
- (b) The speed of an information technology system is dependent on the characteristics of its components. For EACH component listed below, state ONE characteristic that can affect the speed of an IT system.
- |                   |                 |
|-------------------|-----------------|
| (i)      Hardware | <b>[1 mark]</b> |
| (ii)     Software | <b>[1 mark]</b> |
| (iii)    User     | <b>[1 mark]</b> |
- (c) Biometrics is an approach used to authenticate users of information systems.
- |                                                                                                                                                                                                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (i)      State TWO biometric scans that can be used to authenticate users. <b>[2 marks]</b>                                                                                                                  |
| (ii)     Discuss TWO <b>major</b> concerns that users may have with respect to a biometric-based authentication system. <b>[4 marks]</b>                                                                     |
| (iii)    Some systems use a combination of biometrics, username and password to authenticate users. Outline TWO advantages of including biometrics together with the username and password. <b>[4 marks]</b> |

**Total 15 marks**

5. The Human Computer Interface (HCI) of an information technology system is critical to the overall performance of the system.
- (a) Some computer software packages offer both Graphical User Interface (GUI) and Command Line Interface (CLI) to carry out a task. Explain TWO reasons why a user may choose to use the CLI instead of the GUI method. **[4 marks]**

- (b) An online university registration system requires new applicants to enter various pieces of information including the age of the applicant.
- (i) Identify TWO GUI features that can be used to capture the age of an applicant. [2 marks]
- (ii) For ONE of the features identified in (b) (i) above, state ONE advantage of using this feature. [1 mark]
- (iii) State TWO disadvantages of placing **help information** on a user interface. [2 marks]
- (c) You have been contracted by your Ministry of Culture to develop a software application to teach a group of vendors in a marketplace to use computers. Outline THREE important characteristics of the users of this system that should be considered when designing the user interface. [6 marks]

**Total 15 marks**

6. (a) Several protocols are essential to the functioning of the Internet. For EACH acronym below, state its meaning and its function in relation to the Internet.
- (i) HTTP [3 marks]
- (ii) TCP [3 marks]
- (iii) IP [3 marks]
- (b) (i) Using a suitable example, explain EACH of the following terms:
- a) IP address [2 marks]
- b) Domain name [2 marks]
- (ii) Outline ONE reason why using the domain name over an IP address is the preferred method to access web pages. [2 marks]
- (c) For the World Wide Web (www) to exist as an organized collection of resources, a relationship exists among the key components.

Describe the relationship among the three key components of the World Wide Web listed below.

- (i) Website  
(ii) Web page  
(iii) Hyperlink [5 marks]

**Total 20 marks**

### SECTION III – INFORMATION AND PROBLEM SOLVING

**Answer ALL questions.**

7. Problem solving is defined as the process used for finding solutions to daily problems.
- (a) (i) State TWO considerations in selecting the MOST optimal solution to a problem. **[2 marks]**
- (ii) Outline ONE activity that takes place during the review stage of the problem solving process. **[2 marks]**
- (b) To effectively solve problems, quality information is necessary. List THREE criteria for accepting or rejecting information used during the problem solving process. **[3 marks]**
- (c) Your neighbours have a one-year-old baby who suffers from an undetermined health condition. To learn more about the problem, they have started consulting Internet sources for information. Describe TWO characteristics of information sources that must be considered as they search the Internet. **[4 marks]**
- (d) A detailed report was submitted to the teacher of a school by an invigilator. The extract below was taken from the report.

*Damian Shaw who lives at 11 Arbor Lane, Roseau, came into the CAPE Information Technology (IT) examination room wearing his school uniform. He sat next to Trudy Clarke. Thirty minutes before the examination was due to finish, he was seen reading an IT textbook.*

- (i) Based in the extract, identify ONE example of EACH of the following types of information:
- a) Extraneous  
b) Desirable **[2 marks]**
- (ii) Identify TWO categories of information other than those mentioned in (d) (i) above. **[2 marks]**

**Total 15 marks**

8. (a) (i) Define the term 'data flow diagram'. **[1 mark]**
- (ii) Outline TWO differences between a 'context level data flow diagram' and a 'first level data flow diagram'. **[4 marks]**
- (b) A farmer is researching ways to increase his yearly income.
- (i) Identify TWO pieces of information that can help the farmer improve productivity. **[2 marks]**
- (ii) For EACH piece of information listed in (a) above, discuss the MOST appropriate source the farmer should consider for obtaining the required information. **[4 marks]**
- (iii) Outline TWO ways in which access to the Internet can support farmers in improving productivity. **[4 marks]**

**Total 15 marks**

9. (a) Three of the programming paradigms for developing software are the procedural, object-oriented and the functional paradigms.
- (i) Explain any TWO of the paradigms listed above. [4 marks]
- (ii) Give an example of a programming language for EACH paradigm explained in (a) (i) above. [2 marks]
- (b) (i) Explain the function of a ‘loop’ in a block of program code. [2 marks]
- (ii) Describe ONE error that may cause a program to run infinitely. [2 marks]
- (iii) Documenting program code is a very important stage in programming. Outline TWO problems that may arise if programmers do not document source code. [4 marks]
- (c) Figure 1 shows an algorithm.

```
1. Prompt user to enter value for P
2. Input P
3. Prompt user to enter value for N
4. Input N
5. A = 0
6. For Count = 1 to N do
7.     A = Count + P
8.     P = P + 1
9. Endfor
```

**Figure 1**

The user enters 3 and 4, respectively. The table below shows the values of Count, A and P after one iteration.

Count	A	P
1	4	4

Copy the table in your answer booklet and complete it to show the values **after** EACH iteration for the duration of the algorithm. [6 marks]

**Total 20 marks**

**END OF TEST**

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

**FORM TP 2012210**



TEST CODE **02129032**

MAY/JUNE 2012

**CARIBBEAN EXAMINATIONS COUNCIL  
ADVANCED PROFICIENCY EXAMINATION**

**INFORMATION TECHNOLOGY**

**UNIT 1 – Paper 032**

*1 hour 30 minutes*

**06 JUNE 2012 (p.m.)**

**READ THE FOLLOWING INSTRUCTIONS CAREFULLY.**

1. This paper consists of THREE questions.
2. Answer ALL questions.

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**Answer ALL questions.**

1. With reference to an information technology problem that you have researched, answer the following questions.

- (a) Discuss the MAIN reason why you researched this problem. [2 marks]
- (b) Discuss TWO causes of the problem identified in (a). [4 marks]
- (c) Write a problem statement that may form the basis of a solution to the problem you have researched. [3 marks]
- (d) A more detailed analysis of the problem may require the collection of data through direct observation. Outline FOUR guidelines that should be followed when conducting the observation. [8 marks]
- (e) After the observation, you are still unclear about the way a small group of users work with the existing system. Identify ONE other data gathering technique, clearly explaining how the technique will enhance the research process. [3 marks]

**Total 20 marks**

2. (a) Based on the problem statement in Question 1 (c), outline THREE possible solutions. [6 marks]
- (b) Discuss THREE criteria that may be used to evaluate the solutions given in 2 (a) above. [6 marks]
- (c) Outline TWO reasons why it is the usual practice to identify more than one alternative solution. [4 marks]
- (d) Discuss TWO ways in which an enhanced information technology solution may impact positively on users. [4 marks]

**Total 20 marks**

3. You would have selected one of the solutions as the optimal or MOST feasible.
- (a) Discuss THREE reasons why you have chosen this solution. **[9 marks]**
- (b) Outline TWO ways in which cost may increase by implementing a new solution. **[4 marks]**
- (c) You are required to present a professional report on the problem statement, analysis and possible solutions. State the MOST appropriate software application that may be used to prepare this report. **Justify your choice.** **[3 marks]**
- (d) Outline ONE software and ONE non-software approach that may be used to ensure confidentiality of the documents you have prepared. **[4 marks]**

**Total 20 marks**

**END OF TEST**

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

**FORM TP 2012212**



TEST CODE **02229020**

MAY/JUNE 2012

**CARIBBEAN EXAMINATIONS COUNCIL  
ADVANCED PROFICIENCY EXAMINATION**

**INFORMATION TECHNOLOGY**

**UNIT 2 – Paper 02**

***2 hours 30 minutes***

**11 MAY 2012 (a.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 I – INFORMATION MANAGEMENT

**Answer ALL questions.**

1. Information technology is dynamic, with data management procedures for both storage and retrieval changing significantly.

- (a) Explain TWO ways in which EACH of the following has changed over the last 15 years:

(i) Data storage [4 marks]

(ii) Data retrieval [4 marks]

- (b) In data management, one may choose either a flat file approach or a database approach. Outline TWO disadvantages of using the flat file approach instead of the database approach. [4 marks]

- (c) Define EACH of the following data management terms:

(i) Field [1 mark]

(ii) Record [1 mark]

(iii) Cardinality [1 mark]

**Total 15 marks**

2. At ABC International Airport, large volumes of data are stored, retrieved and transmitted daily in relation to flights, passengers and other aspects of the airport's business.

(a) Explain how the absence of EACH of the following may affect the airport's business:

(i) Data timeliness [2 marks]

(ii) Data accuracy [2 marks]

(b) The following information on EACH passenger is to be stored:

- Passenger ID
- Last name
- First name
- Flight
- Seat

(i) Write an SQL statement for creating a passenger table, assuming that all information is stored as strings. [3 marks]

(ii) A record is to be added to the passenger table. Write an SQL statement to add data for passenger John Brown, with ID 1001, taking flight AB2031 and assigned to seat 17C. [3 marks]

(iii) Write a query to display ALL of the details of passengers with the last name 'James'. [3 marks]

(c) A passenger wishes to verify his flight information prior to leaving home. State TWO ways in which he can do this. [2 marks]

**Total 15 marks**

3. (a) Distinguish between the use of EACH of the following pairs of database features:

(i) Forms and reports [2 marks]

(ii) Primary key and foreign key [2 marks]

(b) The customer service representatives at a hardware store maintain a database of information on customers and their orders. The table below is an extract from the hardware store's database.

Customer No.	First_Name	Last_Name	Address	Order No.	Product	Quantity	Unit Price	Total
1	James	Brown	15 Brown's Road	50	Nails	100	1.00	100
2	Fabian	Lovelace	21 Allen Place	51	Screws	100	1.50	150
3	Jason	Cruger	15 City Street	52	Hammers	10	10.00	100
2	Fabian	Lovelace	21 Allen Place	53	Light Bulbs	20	5.00	100
4	Kareen	Brown	5 Rose Drive	54	Nails	200	1.00	200

(i) It has been recommended that the database be normalized. Identify THREE features of the table that justify this recommendation. [3 marks]

(ii) Show the resulting table(s) if the database were to be normalized to the second normal form (2NF). [9 marks]

(iii) A higher level of normalization is the third normal form (3NF).

a) Explain what is meant by the term '3NF', highlighting the benefit it brings to a database. [3 marks]

b) What change would be necessary to convert this database from 2NF to 3NF? [1 mark]

**Total 20 marks**

## SECTION II – USE OF INFORMATION TECHNOLOGY TOOLS

**Answer ALL questions.**

4. Most computer users have access to an office productivity suite which includes tools such as spreadsheet, word processing and presentation software.
- (a) For EACH task below, explain the MOST appropriate way in which it can be accomplished, highlighting the specific feature of a word processor you would use.
- (i) You would like to save your assignment on your computer at school, but you are worried that it may be accessed by other students who will use the computer later. **[2 marks]**
- (ii) You have a database with information on 150 members of the local youth club. You want to create a letter for each of them, and wish to automate the process of inserting their names, addresses and outstanding member fees, which are all in the database. **[2 marks]**
- (iii) You have a document in which you mention a particular person's name several times. You have since discovered that the wrong person's name was used in the document. You wish to make the change automatically to save time and also to ensure that no occurrence is overlooked. **[2 marks]**
- (b) Spreadsheet and database applications have several similarities. Discuss TWO features of spreadsheet applications that make them more appropriate than database applications for statistical use. **[6 marks]**
- (c) A newsletter is to be produced for the school's chess club. The newsletter is to include graphics and text of various sizes and colours. What is the MOST appropriate type of software to produce the newsletter? **Justify your response.** **[3 marks]**

**Total 15 marks**

5. The St Vincent Gym and Spa has contracted you to update their website. Figure 1 below shows the HTML code written for their home page.

```
<html>
<title> The St Vincent Gym and Spa </title>
<body bgcolor="blue">
<H1> Welcome to the St Vincent Gym and Spa </H1>

<P><font face= "arial"> Where workouts and training
meet pampering and relaxation. </font></P>
</body>
</html>
```

**Figure 1**

- (a) Draw a carefully labelled diagram to show ALL components of the web page that this code will generate. **[4 marks]**
- (b) The management of the gym wants you to update the web page with the information shown in the table below.

Item	Price
Regular Member	\$ 900
Gold Member	\$ 1000
Platinum Member	\$ 1200

Write the additional code that would be required to update the webpage. **[5 marks]**

- (c) Outline an alternative method to writing HTML code for developing a web page. **[2 marks]**
- (d) Distinguish between the terms 'blog' and 'wiki'. **[4 marks]**

**Total 15 marks**

6. (a) Jonathan, who lives in Belize, has been employed by a software development company with its head office in Dominica, to write software for its clients. Jonathan will continue to live in Belize and will utilize information and communication technologies to work with the company.
- (i) Explain ONE benefit of using information technology which makes this arrangement feasible for the software development company. **[2 marks]**
- (ii) For EACH task below, explain ONE way that Jonathan can accomplish it, identifying appropriate IT technologies.
- a) Johnathan has written source code for a project and needs to send it to the head office. **[2 marks]**
- b) Jonathan supervises a team of programmers, not all living in Belize, and wishes to meet with them to discuss the design of a software package. **[2 marks]**
- c) Jonathan drew a sketch of a graphical user interface (GUI) on a sheet of paper and needs the feedback of his team on the sketch. **[2 marks]**
- (b) State TWO criteria that may be used to assess the appropriateness of a source of information. **[2 marks]**
- (c) (i) VOIP, also called internet telephony, is quickly becoming a very popular alternative to traditional telephone communication. What does EACH letter in the acronym VOIP represent? **[1 mark]**
- (ii) Outline TWO advantages and TWO disadvantages of VOIP compared with traditional telephone communication. **[4 marks]**
- (d) Intelligent appliances offer improvements over traditional appliances through the use of information technology.
- (i) Identify TWO examples of intelligent appliances in the home. **[2 marks]**
- (ii) For ONE of the appliances identified in (d) (i) above, discuss how the features and use of the appliance in the home setting distinguish it as an intelligent appliance. **[3 marks]**

**Total 20 marks**

**SECTION III – SOCIAL, ORGANISATIONAL AND PERSONAL ISSUES**

**Answer ALL questions.**

7. The incidence of computer crimes have increased over the years.

(a) Define EACH of the following computer crimes:

(i) Software piracy [1 mark]

(ii) Spoofing [1 mark]

(iii) Spamming [1 mark]

(b) Seeta spends many hours a day on the Internet where she does most of her shopping and banking. Her friends are concerned that she may be at risk for **identity theft** and **computer addiction**.

(i) To help Seeta understand her friends' concerns, explain EACH of these risks and how she may become affected by them. [4 marks]

(ii) For EACH of the risks identified in (b), state ONE action which Seeta can take to minimize the risk. [2 marks]

(c) Distinguish between EACH of the following pairs of terms:

(i) Cracking and hacking [2 marks]

(ii) Adware and spyware [2 marks]

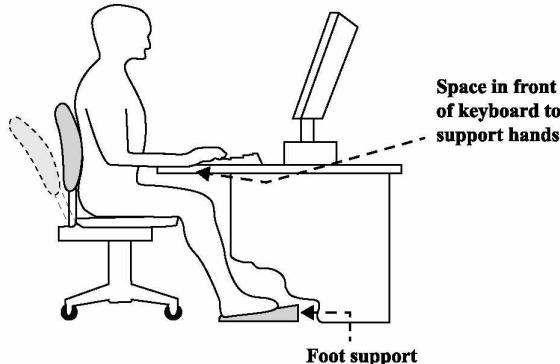
(iii) Pharming and phishing [2 marks]

**Total 15 marks**

8. (a) Caribbean countries are prone to various natural disasters such as hurricanes, earthquakes and flooding. These pose various risks to information technology (IT) systems.
- (i) Identify THREE risks to IT systems, associated with natural disasters. **[3 marks]**
- (ii) For EACH risk identified in (a) (i) above, explain how an organization may reduce the risk. **[6 marks]**
- (b) Organizations periodically change their computers and other hardware as they become outdated.
- (i) State TWO reasons why the disposal of hardware may be a challenge for organizations. **[2 marks]**
- (ii) Describe TWO strategies that may be used by organizations to assist with the disposal of hardware. **[4 marks]**

**Total 15 marks**

9. (a) Figure 2 below illustrates suggested seating and positioning of equipment for computer use.



**Figure 2**

- (i) Explain the purpose of the foot support in the diagram and the potential effect on the health of the user if it is NOT provided. [3 marks]
- (ii) The image also illustrates that space should be in front of the keyboard to support hands during pauses in keying. Name and describe the ailment that can occur if this space is NOT provided. [3 marks]
- (b) Explain how EACH of the following types of malware listed below affects the computer system **and** can be prevented from occurring.
- (i) Virus [2 marks]
- (ii) Trojan [2 marks]
- (iii) Worm [2 marks]
- (c) There is growing concern in businesses with respect to safeguarding information assets. The Caribbean Bank has decided to develop an Internet policy document because of the increased use of the Internet on computers in the bank.
- (i) State any TWO information assets that would need to be protected at the Caribbean Bank. [2 marks]
- (ii) Describe TWO policies that should be included in the Caribbean Bank's Internet policy document. [4 marks]
- (iii) Identify TWO other means by which the Caribbean Bank could safeguard its information assets. [2 marks]

**Total 20 marks**

**END OF TEST**

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

**FORM TP 2012213**



TEST CODE **02229032**

MAY/JUNE 2012

**CARIBBEAN EXAMINATIONS COUNCIL  
ADVANCED PROFICIENCY EXAMINATION**

**INFORMATION TECHNOLOGY**

**UNIT 2 – Paper 032**

*1 hour 30 minutes*

**12 JUNE 2012 (a.m.)**

**READ THE FOLLOWING INSTRUCTIONS CAREFULLY.**

1. This paper consists of THREE questions.
2. Answer ALL questions.

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**Answer ALL questions.**

1. With reference to an information technology (IT) problem that you have researched, answer the following questions.
  - (a) Write a problem statement which may be used as the basis for developing a solution. Your problem statement should highlight your assumptions that define the scope of the problem, known information, and the expected result after solving the problem. **[3 marks]**
  - (b) Various tools can be used for analyzing an IT problem. Identify TWO tools you consider appropriate for analysis of the problem identified in (a) above. **Justify the selection of these tools.** **[4 marks]**
  - (c) Based on the analysis done using the tools in (b) above, explain TWO causes of the problem. **[4 marks]**
  - (d) The first two phases of the problem-solving process are the problem definition and the problem analysis.
    - (i) Identify the FOUR other phases in the problem-solving process. **[2 marks]**
    - (ii) Explain how EACH stage in (d) (i) above will assist you in solving the problem identified. **[4 marks]**
    - (iii) For any ONE of the stages in (d) (i) above, name ONE software tool and explain how it may be used in the stage. **[3 marks]**

**Total 20 marks**

2. Information Technology (IT) solutions usually include hardware, software and users, as well as some inputs, processing and outputs.

- (a) (i) Write a summary of your solution to the problem identified in **Question 1 (a)**, in terms of its inputs, processing and outputs. **[6 marks]**
- (ii) For EACH of the categories below, state TWO of the components you would use in your solution to the problem.
- |             |                 |
|-------------|-----------------|
| a) Hardware | <b>[1 mark]</b> |
| b) Software | <b>[1 mark]</b> |
| c) Users    | <b>[1 mark]</b> |
- (iii) Describe the function of EACH of the components you identified in the solution described in (a) (ii) above. **[6 marks]**
- (b) When IT solutions are implemented there are usually some impacts on the organization.
- (i) For your solution described in (a) above, discuss TWO of the likely impacts on the organization in which it is to be implemented. **[4 marks]**
- (ii) For ONE of the impacts identified in (b) (i) above, identify a strategy that may be used to address the impact on the organization. **[1 mark]**

**Total 20 marks**

3. Your working solution should have included at least three entities.

- (a) State THREE of the entities in your solution. **[3 marks]**
- (b) Draw an entity-relationship diagram to illustrate the relationships among at least THREE entities in your solution. **[7 marks]**
- (c) Write a Structured Query Language (SQL) statement to create a table for any THREE of the entities in your solution. **[6 marks]**
- (d) Explain ONE security feature and ONE data validation method which you would implement in your solution. **[4 marks]**

**Total 20 marks**

**END OF TEST**

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

**FORM TP 2013210**



TEST CODE **02129032**

MAY/JUNE 2013

**CARIBBEAN EXAMINATIONS COUNCIL**

**CARIBBEAN ADVANCED PROFICIENCY EXAMINATION®**

**INFORMATION TECHNOLOGY**

**UNIT 1 – Paper 032**

*1 hour 30 minutes*

**10 JUNE 2013 (p.m.)**

**READ THE FOLLOWING INSTRUCTIONS CAREFULLY.**

1. This paper consists of THREE questions.
2. Answer ALL questions.

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**Answer ALL questions.**

1. With reference to a problem which you have researched, answer the following questions.
  - (a) Write a description of the problem you have researched. **[2 marks]**
  - (b) Discuss any TWO causes of the problem described in (a). **[4 marks]**
  - (c) Defining the problem and identification of possible solutions are two steps in the problem solving process. Explain ONE **other** step in the problem solving process. **[2 marks]**
  - (d) For EACH scenario below, identify the **most appropriate** data gathering instrument. Justify your choice of EACH instrument.
    - (i) You require feedback from five managers on the limitations of the current manual system. **[2 marks]**
    - (ii) You need the answers to 15 questions, intended to gather quantitative data from 100 users in a single company. **[2 marks]**
    - (iii) You wish to see how users interact with the current system on a day-to-day basis. **[2 marks]**
  - (e) For EACH of the three instruments identified in (d) above, outline ONE limitation which you should consider. **[6 marks]**

**Total 20 marks**

2. You have proposed several solutions to the problem you described in Question 1 (a), from which you will select an optimal solution.
  - (a) Discuss THREE possible solutions for the problem you described in Question 1 (a). **[9 marks]**
  - (b) Evaluate the feasibility of EACH solution proposed in 2 (a). **[9 marks]**
  - (c) Explain the benefit of identifying several possible solutions prior to selecting your final solution. **[2 marks]**

**Total 20 marks**

3. Once the solutions have been evaluated, you need to select the optimal or most feasible one.
- (a) Select the MOST feasible of the three solutions presented in Question 2 (b). **[1 mark]**
- (b) Justify your selection, making reference to ALL of the strategies being recommended in the solution stated in 3 (a). **[8 marks]**
- (c) You were unable to implement the most feasible solution due to some unforeseen circumstances and must select one of the remaining alternative solutions.
- (i) State which of the remaining solutions you would select. **[1 mark]**
- (ii) Justify the selection of the alternative. **[4 marks]**
- (iii) Explain ONE disadvantage of using this alternative rather than the solution selected in 3 (a) and specify a means of compensating. **[4 marks]**
- (d) Your teacher has asked you to make a presentation to the class of your entire problem solving process. State the MOST appropriate type of application software to accomplish this. **Justify your choice of software.** **[2 marks]**

**Total 20 marks**

**END OF TEST**

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**FORM TP 2013213**



TEST CODE **02229032**

MAY/JUNE 2013

**CARIBBEAN EXAMINATIONS COUNCIL**

**CARIBBEAN ADVANCED PROFICIENCY EXAMINATION®**

**INFORMATION TECHNOLOGY**

**UNIT 2 – Paper 032**

*1 hour 30 minutes*

**14 JUNE 2013 (a.m.)**

**READ THE FOLLOWING INSTRUCTIONS CAREFULLY.**

1. This paper consists of THREE questions.
2. Answer ALL questions.

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**Answer ALL questions.**

1. With reference to an information technology (IT) problem that you have researched, answer the following questions.

- (a) Write a problem statement which can be the basis of developing a solution. **[2 marks]**
- (b) Discuss THREE causes of the problem described in (a) above. **[6 marks]**
- (c) In the analysis of a problem, you may use several data-gathering tools.
- (i) Identify TWO tools that you could use to assist in performing a thorough analysis of the problem stated in (a). Provide a clear justification for your answer. **[6 marks]**
- (ii) Discuss ONE limitation of EACH of the tools named in (c) (i) above. **[4 marks]**
- (d) The first two phases of the problem-solving process are the problem definition and the problem analysis. State the additional phases that should be completed in solving the problem. **[2 marks]**

**Total 20 marks**

2. Information technology (IT) solutions usually include hardware, software and users, as well as inputs, processing and outputs.

- (a) State ONE component in your solution for EACH of the following categories:
- (i) Hardware **[1 mark]**
- (ii) Software **[1 mark]**
- (iii) Users **[1 mark]**
- (b) Discuss the function of EACH of the components you identified in the solution described in (a) above. **[6 marks]**
- (c) When IT solutions are implemented, they usually have some impact on the organization.
- (i) Describe your solution to the problem stated in Question 1 (a), in terms of its inputs, processing and outputs. **[6 marks]**
- (ii) For your solution described in (c) (i) above, discuss TWO of the likely impacts on the organization in which it is to be implemented. **[4 marks]**
- (d) Identify ONE limitation of your solution. **[1 mark]**

**Total 20 marks**

3. Your working solution should have included at least three entities.
- (a) State THREE of the entities in your solution. **[3 marks]**
- (b) Draw an entity relation diagram to illustrate the relationship among these entities. **[5 marks]**
- (c) Describe EACH entity using standard notation. **[6 marks]**
- (d) Write a Structured Query Language (SQL) statement to create a table for EACH of the THREE entities stated in (a) above. **[6 marks]**

**Total 20 marks**

**END OF TEST**

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**FORM TP 2013209**



TEST CODE **02129020**

MAY/JUNE 2013

**CARIBBEAN EXAMINATIONS COUNCIL**

**CARIBBEAN ADVANCED PROFICIENCY EXAMINATION®**

**INFORMATION TECHNOLOGY**

**UNIT 1 – Paper 02**

*2 hours 30 minutes*

**06 MAY 2013 (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 I – FUNDAMENTALS OF INFORMATION TECHNOLOGY**

**Answer ALL questions.**

**1.** Information technology (IT) is the application of computer science to solve real life problems.

(a) Outline ONE example of IT being used in EACH of the following:

(i) Health care **[2 marks]**

(ii) Education **[2 marks]**

(b) For EACH aspect of computer science identified below, describe its function in IT solutions.

(i) Programming **[2 marks]**

(ii) Databases **[2 marks]**

(c) Information technology involves the use of data. Distinguish between the following forms of data:

(i) Qualitative and quantitative **[2 marks]**

(ii) Sampled and detailed **[2 marks]**

(d) Construct a diagram which illustrates the relationship among **data**, **knowledge** and **information**. **[3 marks]**

**Total 15 marks**

**2.** Information processing is integral to information technology.

(a) The information processing cycle is a sequence of four main activities performed by a computer.

(i) Identify the FOUR activities. **[4 marks]**

(ii) Construct a diagram to illustrate the information processing cycle. **[3 marks]**

(b) Information to be used in decision making should exhibit certain characteristics.

(i) State TWO of these characteristics. **[2 marks]**

(ii) With reference to a commercial banking system, explain how EACH of the characteristics identified in (b) (i) is important for decision making.

**[4 marks]**

(c) Explain the phrase ‘garbage in, garbage out’ or ‘GIGO’ as used in the context of information technology. **[2 marks]**

**Total 15 marks**

GO ON TO THE NEXT PAGE

3. Computer hardware and software characteristics and capabilities have changed over the last 30 years.

(a) Identify ONE way in which EACH of the following has changed.

(i) Size of hardware [1 mark]

(ii) Processor speed [1 mark]

(b) Outline the function of EACH of the following tools in the transmission of information.

(i) Modem [2 marks]

(ii) Antenna [2 marks]

(iii) Web browser [2 marks]

(c) Magdalene owns a small business and wishes to improve its efficiency by computerizing some aspects of the business. She has recently purchased an office productivity suite.

For EACH business task identified below, specify the tool in the productivity suite that would be **most appropriate** for use by Magdalene. **Justify your answer.**

(i) Preparing letters for clients [3 marks]

(ii) Preparing accounting statements [3 marks]

(iii) Managing inventory/stock [3 marks]

(iv) Creating a company newsletter [3 marks]

**Total 20 marks**

## SECTION II – INFORMATION TECHNOLOGY SYSTEMS

**Answer ALL questions.**

4. An information technology system or information system can be described as a collection of components used to produce quality information.
- (a) Apart from users, identify THREE other components of an information technology system. **[3 marks]**
- (b) Outline the role of users as a component of an information technology system. **[2 marks]**
- (c) There are many different types of information technology systems. One example is a management information system (MIS).
- (i) Identify TWO other types of information technology systems. **[2 marks]**
- (ii) Describe the function of EACH of the information technology systems identified in (c) (i) above. **[4 marks]**
- (d) Explain, **using an appropriate example**, why it is useful to distinguish between the categories of users in an information technology system. **[4 marks]**

**Total 15 marks**

5. (a) Define the terms ‘authentication’ and ‘authorization’. **[2 marks]**
- (b) Usability and security are two factors that must be considered in the design of computer interfaces.

A user interface is to be designed for an automated teller machine (ATM). It is intended that the ATM will be used by both sighted and visually impaired persons.

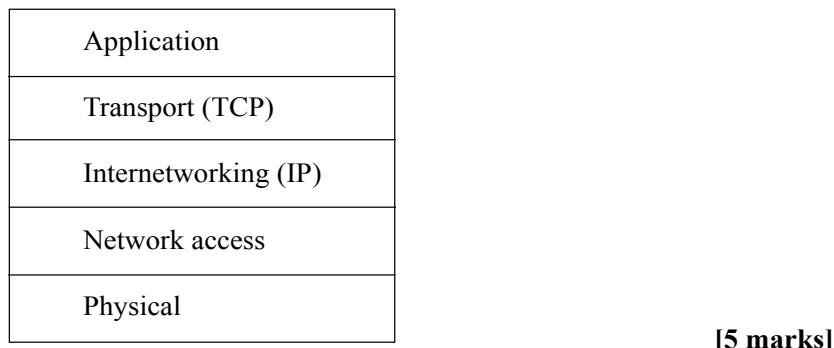
For EACH of the following technologies, describe ONE design feature that can be incorporated to assist the visually impaired in using the ATM.

- (i) Card reader **[2 marks]**
- (ii) Data entry by the user (for example, PIN [personal identification number], account selection, dollar amounts) **[2 marks]**
- (iii) Commands and results from the system to the user (for example, account balance, request for PIN) **[2 marks]**
- (c) Describe TWO additional security features, other than the use of a PIN, that would be appropriate in an ATM. **[4 marks]**
- (d) State THREE features of a strong password. **[3 marks]**

**Total 15 marks**

6. The World Wide Web (WWW) is an interconnection of hypertext documents accessible to Internet users.

- (a) Write EACH of the following acronyms in full and explain its function in the context of the WWW:
- (i) HTML [3 marks]  
(ii) HTTP [3 marks]  
(iii) URL [3 marks]
- (b) State ONE example of a domain name and ONE example of an IP address. [2 marks]
- (c) Explain why a domain name is more frequently used than an IP address for locating a website. [4 marks]
- (d) The TCP/IP is an important aspect of the internet. The diagram below illustrates this protocol in layers. Explain the purpose of EACH layer.



**Total 20 marks**

**SECTION III – INFORMATION AND PROBLEM SOLVING**

**Answer ALL questions.**

7. The problem solving process has several stages, which when followed may lead to an optimal solution to a problem.
- (a) Discuss the importance of the ‘analyse the problem’ stage. [3 marks]
- (b) Discuss the purpose of TWO tools used in the ‘analyse the problem’ stage. [6 marks]
- (c) Information available for a given problem solving scenario may be categorized in one of the ways listed below. Explain any TWO of the following categorizations.
- (i) Extraneous
- (ii) Desirable
- (iii) Essential
- (iv) Cosmetic [4 marks]
- (d) Carlos finds a flyer while waiting at the bus stop. The flyer advertises a method of earning US \$5 000 per week for life by investing US \$10 using a credit card at the website listed on the flyer. Carlos is very interested in the opportunity but wishes to get additional information.  
Explain why the website listed may not be a trustworthy source of information for Carlos. [2 marks]

**Total 15 marks**

8. Algorithms are useful tools in the problem solving process because they require the user to identify a systematic approach to the solution of the problem.

- (a) Examine the algorithm shown below.

```
sum=0
counter=0
for x =1 to x=20
    if x mod 3 =0
        counter=counter+1
        sum=sum+x
    x=x+1
z=sum/counter
print counter
print z
```

- (i) Explain the function of the algorithm shown above. [3 marks]
- (ii) State the output of the algorithm. [2 marks]
- (iii) Design a flow chart to represent this algorithm. [6 marks]
- (b) The following algorithm was designed to accept numeric values representing temperature readings for a week. It should then calculate the average of temperatures entered and print that value. However, the algorithm results in a program which freezes the computer on which it is running.

```
count=0
sum=0
average=0
temperature=0
while temperature is not 999
    read temperature
    sum=sum+temperature
    average=sum/count
print average
```

- (i) Explain the source of the problem in the algorithm. [2 marks]
- (ii) Rewrite the algorithm with the necessary corrections. [2 marks]

**Total 15 marks**

9. After algorithms have been developed, it is common to develop programs based on these algorithms.
- (a) Use a diagram to illustrate the stages in the program development process. **[4 marks]**
- (b) Explain EACH of the following programming paradigms, giving ONE example of a language in EACH case.
- (i) Object oriented **[2 marks]**
- (ii) Functional **[2 marks]**
- (iii) Procedural **[2 marks]**
- (c) Assembly programming is not popular for the development of typical application software, but it is still quite useful.
- (i) Identify TWO advantages of assembly programming over high-level programming. **[2 marks]**
- (ii) Identify TWO disadvantages of using assembly programming as compared with high-level programming. **[2 marks]**
- (d) Any program written in a typical high-level programming language contains various control structures. Explain EACH of the control structures listed below.
- (i) Sequence **[2 marks]**
- (ii) Selection **[2 marks]**
- (iii) Iteration **[2 marks]**

**Total 20 marks**

**END OF TEST**

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**FORM TP 2013212**



TEST CODE **02229020**

MAY/JUNE 2013

**CARIBBEAN EXAMINATIONS COUNCIL**

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**INFORMATION TECHNOLOGY**

**UNIT 2 – Paper 02**

*2 hours 30 minutes*

**15 MAY 2013 (a.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 I – INFORMATION MANAGEMENT

**Answer ALL questions.**

1. Businesses and other organizations depend heavily on well-organized, high-quality data for the efficient and effective running of their operations.

- (a) In database management, the relational model is a popular approach for designing databases. Outline TWO differences between the relational approach and the hierarchical approach to database design. **[4 marks]**
- (b) Distinguish between the terms ‘sequential access’ and ‘random access’. **[4 marks]**
- (c) State THREE ways in which the Internet has made data handling and data processing more efficient. **[3 marks]**
- (d) FedRawl Express is an international shipping corporation which offers its freight services to one hundred million customers in seventy five countries worldwide.

Outline TWO ways in which the absence of timely data may impact the business operations of FedRawl Express. **[4 marks]**

**Total 15 marks**

2. (a) (i) Identify TWO elements of an entity-relationship diagram (ERD) and draw the symbol used to represent EACH of the elements. **[4 marks]**

- (ii) Explain the purpose of using an ERD in database modelling. **[3 marks]**

- (iii) State TWO functions of the foreign key. **[2 marks]**

- (b) One of the benefits of a normalized database is improved performance.

- (i) Define the term ‘normalization’. **[2 marks]**

- (ii) Identify TWO benefits of a normalized database other than improved performance. **[2 marks]**

- (iii) Explain any ONE of the benefits stated in (b) (ii) above. **[2 marks]**

**Total 15 marks**

3. (a) The University of High Excellence maintains a database of its employees' vehicles which is used primarily for distributing parking permits to the employees and for security purposes. The table below shows the structure of this database populated with some of the staff entries.

<b>StaffName</b>	<b>VehicleID</b>	<b>Staff ID</b>	<b>Colour</b>	<b>Address</b>	<b>VehicleID</b>	<b>Model</b>	<b>Type</b>	<b>Year</b>
Jean Poser	1234098	123JJ	Black	20 Pope St, New Amsterdam	1234abc	Toyota	Corona	2011
Lyle John	344498	123LS	Blue	17 John St, Georgetown	1234def	Mercedes Benz	Mini MPV	2011
Lyle John	1454764	123LS	Blue	17 John St, Georgetown	2341ght	Allion	Toyota	2010
Sharon Paul	7566238	124SP	Pink	15 Peter Rose St, Corrивerton	234ghi	BMW	BMW X6	2011
Sharon Ragu	5345225	342SK	Red	17 Pike St, Georgetown	1234thy	Volkswagen	Audi	2011
Katie Ram	5375855	453KR	Yellow	17 Area A, Rose Hall	1234vgh	Ford	Edge	2011

- (i) Identify ONE other entity, apart from Staff, named in the table above. [1 mark]
- (ii) What type of relationship BEST describes the data in the table above? [1 mark]
- (iii) Outline TWO problems of a poorly designed database. [4 marks]
- (iv) State ONE example of EACH of the problems identified in (a) (iii) above. [2 marks]
- (b) The University of High Excellence was informed by its IT staff that a redesign might be necessary to improve the performance of the database.
- (i) Redesign the database so that it is normalized to the second normal form. [6 marks]
- (ii) Using standard notation, write the 3NF for the STAFF relation. [2 marks]
- (c) Structured Query Language (SQL) statements can be used to extract information from the database. Using your normalized database, write a SQL statement to display ALL of the details of vehicles designed in 2010. [4 marks]

**Total 20 marks**

## SECTION II – USE OF INFORMATION TECHNOLOGY TOOLS

**Answer ALL questions.**

4. Office productivity suites provide tools such as word processors, spreadsheet applications, database applications and presentation software for end users.
- (a) The tasks below can be done using specific features of word processing software. For EACH task, state the MOST appropriate way it can be accomplished and highlight the specific word processing feature you would use.
- (i) You have created a document that is 50 pages long. On EACH page, there is a title called ‘Introduction to Word Processing’. You would like to change ALL titles to ‘Introduction to Word Processing Features’. **[2 marks]**
- (ii) You are creating a document and would like to have your personal data appear in a consistent way at the top of EACH page of the document. **[2 marks]**
- (b) Spreadsheet and database applications can be used to do the same task. However, in some cases, it is more appropriate to use one application rather than the other.
- (i) State THREE situations when it is more appropriate to use a spreadsheet application rather than a database application. **[3 marks]**
- (ii) Discuss TWO advantages of using database software over spreadsheet software. **[4 marks]**
- (c) When creating multimedia presentations, one of the factors that should be taken into consideration is the target audience. Discuss TWO features of presentation software that may be used to enhance a multimedia presentation designed for a group of kindergarten children. **[4 marks]**

**Total 15 marks**

5. Dr Betty Welcome, a CAPE Information Technology (IT) teacher, has started to develop a website to provide information for her students. **Figure 1** below is an illustration of a part of her homepage when displayed in a web browser.

# Dr Welcome's CAPE IT Website

Welcome to my website. On this website you will find additional materials for CAPE Information Technology.

The following resources are available

1. [Introduction to Computers](#)
2. [Key Definitions](#)
3. [CAPE IT Syllabus](#)



good luck

Fingers crossed

**Figure 1: Dr Welcome's webpage**

- (a) Write the HTML code that would produce the webpage in **Figure 1** above. [12 marks]
- (b) (i) The term 'blog' is a shortened form of a longer term. What is the longer term for 'blog'? [1 mark]
- (ii) A company with low start-up capital may choose to use a blog to promote its business instead of setting up a company website. State TWO advantages of using a blog as compared to a corporate website. [2 marks]

**Total 15 marks**

6. Information technology tools are now among the most commonly used tools to solve real-life problems. One of the reasons for this is that there is a wide range of tools available for information retrieval, dissemination and communication.

(a) Rohan is a cricket fan who has recently started his own cricket website. For EACH task below, identify the MOST appropriate information technology tool that Rohan can use to complete the task. State ONE reason for EACH choice.

(i) Rohan wants to develop a 24-hour service that would help other cricket fans to communicate with each other, share ideas, discuss current cricket matches and cricket in general. **[2 marks]**

(ii) Rohan wants to communicate with all fans once per week with a summary of all resources posted on his website for that week. **[2 marks]**

(iii) Rohan wants to facilitate question and answer sessions hosted by former cricketers and allowing interaction with fans. **[2 marks]**

(b) Farmer Sita lives in a remote village in the countryside of Guyana. She suffers losses because of what she suspects to be a new strain of a plant disease. She is desperate to find out the real cause of the problem.

Although she owns a computer, Farmer Sita does not have Internet access in her area and has been seeking assistance from a crop specialist. For EACH of the tasks listed below, identify the MOST appropriate information source for the given task. Justify your choice.

(i) The crop specialist has advised Farmer Sita to take photographs of the diseased crop and send them to the specialist for an initial investigation. **[2 marks]**

(ii) After examining the photographs, the crop specialist cannot find an answer to the problem. He believes that the latest scientific research may provide him with an answer. **[2 marks]**

(iii) The crop specialist has still not found the cause of the problem. He has decided that the best course of action is to ask Farmer Sita for her permission to share the photographs with other farmers who either are suffering from the same problem or who have found a solution. **[2 marks]**

(c) The crop specialist receives a number of comments and detailed feedback on likely causes of the problem and possible solutions. Outline TWO criteria that may be used to assess the appropriateness of the comments and feedback received. **[4 marks]**

(d) Telemedicine is an emerging application of Information Technology tools to solve health problems. Discuss TWO technological developments that have made telemedicine possible. **[4 marks]**

**Total 20 marks**

**SECTION III – SOCIAL, ORGANISATIONAL AND PERSONAL ISSUES**

**Answer ALL questions.**

7. Information technology has impacted society in almost every possible way and has changed the way we live, work, communicate and interact with each other. It has made the world a global village.
- (a) Explain how the widespread availability and use of information technology has impacted EACH of the following areas:
- |       |                      |                  |
|-------|----------------------|------------------|
| (i)   | Education            | <b>[2 marks]</b> |
| (ii)  | Corporate management | <b>[2 marks]</b> |
| (iii) | Government           | <b>[2 marks]</b> |
- (b) (i) Many organizations are now deploying IT-based Knowledge Management Systems to improve the way knowledge is managed within an organization. Discuss ONE benefit of using information technology for knowledge management in an organization. **[3 marks]**
- (ii) Describe TWO procedures that an organization may employ to protect itself from phishing attacks. **[4 marks]**
- (iii) State TWO ways in which information technology has impacted job opportunities. **[2 marks]**

**Total 15 marks**

8. Developing countries such as those in the Caribbean have from time to time received donations of used or refurbished computers from donor agencies in the developed world. These computers can potentially pose various risks to the recipients.
- (a) Discuss TWO types of risks that used or refurbished computers are likely to pose to recipients. **[6 marks]**
- (b) The Cooperative Society of the West Indies (CSWI) is planning to upgrade its operations from a manual system to a fully computerized system. As part of this upgrade, changes will be made to the existing policies to
- reduce the cost of software and hardware tools
  - make the workplace safer
  - introduce environmentally friendly computing practices.
- (i) Outline TWO ways in which CWSI can minimize its software costs. **[4 marks]**
- (ii) Outline TWO computing practices that CSWI can implement as part of its environmentally friendly computing policy. **[4 marks]**
- (iii) Recommend ONE ergonomic best practice that CSWI should implement. **[1 mark]**

**Total 15 marks**

9. Information Technology provides opportunities for individuals and organizations to access and use information provided by a wide variety of sources. However, access does not mean free to use, as information may be protected by various laws.
- (a) (i) Define the term ‘trademark’. [2 marks]
- (ii) State TWO practices that could lead to accusations of plagiarism. [2 marks]
- (b) Software piracy is a major problem for software developers, owners of software, and law enforcement agencies.
- (i) Discuss THREE ways in which software piracy can affect an organization. [6 marks]
- (ii) Outline TWO mechanisms that a government can use to deal with software piracy. [4 marks]
- (c) Most organizations now provide Internet access to employees for work purposes. However, employees may also engage in non-work related activities and in the process increase the risk of compromising the organization’s information assets.
- (i) Discuss TWO issues that should be included in an organization’s email use policy document. [4 marks]
- (ii) Explain ONE means by which an organization can protect its information assets from being compromised through emails. [2 marks]

**Total 20 marks**

**END OF TEST**

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