INSTRUCTIONS TO CANDIDATES

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

MODULE 1: COMPONENTS OF COMPUTER SYSTEMS

Answer ONE question from this section.

1. (a) Differentiate between EACH of the following as they pertain to computers and information systems:

   (i) RAM and EPROM [2 marks]

   (ii) Centralized and distributed network configurations [2 marks]

   (iii) Cache memory and RAM [2 marks]

   (iv) EPROM and EEPROM [2 marks]

   (v) Modem and network interface card [2 marks]

(b) Explain in detail how an operating system can execute THREE processes at the same time. [8 marks]

(c) A university wishes to purchase a human resource software package to maintain data on employees from different departments. All departments are networked together.

   (i) Describe FOUR data requirements that the package should meet. [8 marks]

   (ii) Describe TWO communication requirements that the package should meet. [4 marks]

Total 30 marks
2. (a) Consider the following diagram of a computer network.

![Diagram of a computer network showing Token Ring Network and Star Network connections.]

Identify and describe the overall network topology that is being used in the figure above. [3 marks]

(b) Describe TWO advantages of fibre-optic cable over coaxial cable. [4 marks]

(c) (i) Draw a diagram to show the layers of the OSI model for computer communication. [7 marks]

(ii) With respect to the diagram drawn in 2 (c) (i), clearly state ONE function of EACH of the layers drawn. [7 marks]

(d) Explain how a computer transmits data to another computer in

(i) a bus network [4 marks]

(ii) a ring network [5 marks]

Total 30 marks
SECTION B
MODULE 2: APPLICATIONS OF COMPUTERS

Answer ONE question from this section.

3. (a) With the aid of examples, distinguish between data loss and data corruption. [4 marks]

(b) A certain company has three levels of management: lower, middle and top.

(i) Describe the types of decisions made at EACH level of the company. [9 marks]

(ii) State the type of information system that would be appropriate for EACH level of decision-making in the company. [3 marks]

(iii) Describe the characteristics of EACH information system stated in 3 (b) (ii) above. [9 marks]

(c) A series of hurricanes recently caused extensive data loss and damage to the computers of several organizations in a Caribbean country.

(i) State TWO precautions these organizations could have taken to minimize the effects of data loss. [2 marks]

(ii) For ONE of the precautions stated in 3 (c) (i) above, discuss how the organizations could have implemented that precaution. [3 marks]

Total 30 marks

4. (a) Several banks in the Caribbean are now offering limited financial services to customers on the Internet. Describe TWO techniques that can be employed to prevent or deter unauthorised access of their Web-based systems. [6 marks]

(b) Recently, a popular singer discovered that someone was making copies of his music. He informed the police and the person was arrested. Explain why this person was arrested for making copies of the singer’s music. [6 marks]

(c) Using examples, describe THREE ways in which an organisation can benefit from automation. [9 marks]

(d) Discuss THREE ways in which computer applications have affected the job market. [9 marks]

Total 30 marks

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Carib Merchant and Finance is a company operating in the financial sector in a large Caribbean country. Four years ago, its management read a report on a Web site that forecasted that in three years time, similar companies around the world would be conducting most of their business on the Internet. To prepare for this, Carib Merchant and Finance borrowed and spent millions of dollars on a suitable Internet infrastructure for customers to conduct transactions using their Web site. However, after four years, less than one per cent of the company’s customers are using the Web site. This has caused the company to experience a big loss in its investment, which now threatens its survival in the competitive financial sector.

(i) Describe THREE other sources of information that could have been used to confirm the information found on the Web site. [6 marks]

(ii) Discuss THREE evaluative criteria that the management of Carib Merchant and Finance could have used to accept or reject the information found on the Web site. [9 marks]

(b) Discuss TWO ways in which an organization can benefit from using the Internet as an information source. [6 marks]

(c) Discuss EACH of the following as it pertains to an information source:

(i) Cost [3 marks]

(ii) Currency [3 marks]

(iii) Accuracy [3 marks]

Total 30 marks
6. At a certain university, the staff members need to access information on students (for example, name, address, marital status and courses). The university’s governing council requires summary information on the number of students in the university and where they come from, information on new students, the courses being offered, and the number of students registered, as well as, fees paid.

(a) (i) Select a software tool that is MOST appropriate for storing and retrieving information on students and their courses of study. [1 mark]

(ii) Describe THREE features of the software tool chosen in 6 (a) (i) above that make it most appropriate. [9 marks]

(b) (i) Select a software tool that is MOST appropriate for analysing and generating information on students. [1 mark]

(ii) Discuss TWO features of the software tool chosen in 6 (b) (i) above that make it MOST appropriate. [6 marks]

(c) The Chancellor of the university is required to make a presentation to a group of regional leaders on students registered for each graduate and post-graduate programme. Describe how the presentation should be put together using appropriate software tools. [6 marks]

(d) The university periodically sends newsletters to its former students, and often sends brochures on new programmes offered at the post-graduate level. Select a software tool that is MOST appropriate for producing the newsletter and brochures. Give TWO reasons why you think that the selected tool is MOST appropriate. [7 marks]

Total 30 marks

END OF TEST