



UNIVERSITY OF COLOMBO, SRI LANKA

UNIVERSITY OF COLOMBO SCHOOL OF COMPUTING

DEGREE OF BACHELOR OF INFORMATION TECHNOLOGY
Academic Year 2009/2010 – 2nd Year Examination – Semester 4

IT4103: Programming II
PART 2 - Structured Question Paper

14th August, 2010
(ONE HOUR)

To be completed by the candidate

BIT Examination Index No:

Important Instructions:

- The duration of the paper is **1 (one) hour**.
- The medium of instruction and questions is English.
- This paper has **2 questions** and **6 pages**.
- **Answer all 2 questions. Questions do not carry equal marks.**
- **Write your answers** in English using the space provided **in this question paper**.
- Do not tear off any part of this answer book.
- Under no circumstances may this book, used or unused, be removed from the Examination Hall by a candidate.
- Note that questions appear on both sides of the paper.
If a page is not printed, please inform the supervisor immediately.

Questions Answered

Indicate by a cross (X), (e.g.

X

) the numbers of the questions answered.

To be completed by the candidate by marking a cross (X).	Question Numbers		
	1	2	
To be completed by the examiners:			

- 1) **Linked structure is a very widely used data structure in programming and there are different types of it.**

a)

- i) Write a description describing the important components that make up a linked list. (Use diagrams, when required, to elaborate the significant features of the linked list.)
- ii) Compare an array with a linked list and identify two(02) limitations of an array which can be overcome by using a linked list.

(30 Marks)

ANSWER IN THIS BOX

i)

ii)

- b) Write a Java program to illustrate a singly linked list where one can clearly identify a singly linked list node which enables to store an integer number. Then write a singly linked list class to show the behaviours of only the following methods.

- i) Adding a new node to the head of the list
- ii) Adding a node to the tail of the list
- iii) Checking to see the emptiness of the list

(30 marks)

ANSWER IN THIS BOX

i)

ii)

iii)

2)

- a) Consider the following stream of data which is stored in the array

5 1 9 8 7 0 2 3 4 6

Using an illustration, explain the process of creating a balanced binary search tree with the use of an ordered array. (10 Marks)

ANSWER IN THIS BOX

b) Write an application and an applet to display the following name.

Vimukthi Jayaweera

Discuss 3 differences of applications and applets.

(30 Marks)

ANSWER IN THIS BOX

[illegible]