



**UNIVERSITY OF COLOMBO, SRI LANKA**

**UNIVERSITY OF COLOMBO SCHOOL OF COMPUTING**

**DEGREE OF BACHELOR OF INFORMATION TECHNOLOGY**

**Academic Year 2012/2013 – 2<sup>nd</sup> Year Examination – Semester 4**

***IT4104: Programming II***  
***PART 2 - Structured Question Paper***

**20<sup>st</sup> July, 2013**  
**(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 both questions. Questions do not carry equal marks. (45% and 55%)**
- **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)

a) Write the postfix expressions of the following infix expressions

(10 Marks)

1.  $A*B+C$
2.  $A*(B+C)$
3.  $A*B+C*D$
4.  $(A+B)*(C-D)$
5.  $((A+B)*C)-D$

**ANSWER IN THIS BOX**

1.

2.

3.

4.

5.

b) Consider the following Java program illustrating a link of a singly linked list.

```
class Link
{
public long dData;
public Link next;

public Link(long dd) { dData = dd; }

public void displayLink()
{ System.out.print(dData + " "); }
}
```

Write a Java program to implement a stack using a singly linked list considering the link class shown above. When writing the linked list write only the statement/methods noted in the answer box and writing other statement/methods have no effect to the marking process. ( 35 Marks)

a) Write a statement to refer to the first item on the list.

b) Write the required method to check whether the linked list is empty.

c) Write a method to push an element into the stack.

d) Write a method to pop an element from the stack.

2)

a) Name three(03) different ways one can represent a graph.

(15 Marks)

**ANSWER IN THIS BOX**

1.

2.

3.

b) Write a segment of Java code to implement selection sort algorithm.

(20 Marks)

**ANSWER IN THIS BOX**

c) Write a segment of Java code to implement bubble sort algorithm.

(20 Marks)

**ANSWER IN THIS BOX**

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