University of Technology

University Of Technology

Department Of Computer Sciences

Computer Sciences Department

Subject: Data Structures | *Final Examination 2011-2012* | *Class: second*

Examiner: Ragheed Dawood | *First attempt* | *Time: 3 hours*

Note: Answer Four Questions Only

Q1// A) Declaration a six dimensional array, and then write a function to compute row and column wise methods. (6 marks)

B) Convert the following infix expression into postfix notation using one stack
X= a ^ n - (p*4+S)/F OR (b - y/3 +w) AND (c^3) ^2 (6 marks)

Q2// Write a C++ program to perform the following steps in sequence: (13 mark)

1- Create a File content integer numbers.
2- Put even numbers in a Stack.
3- Put odd numbers in a Circular Queue.
4- Display the result.

Q3// A) Suppose you have an Array A [Size] of integer values, write a complete recursion program to perform the following steps: (6 marks)

1- Split the values of A into two Arrays.
2- Find minimum and maximum value in splitted arrays.
3- Display the result.

B) Suppose you have a Tree (T), write a function to perform the following steps:

1- Find the number of terminal nodes (6 marks)
2- Find the number of nodes that have even values

Q4// Given the following characters values (C+O*1-5/M^7-2+P and 10 >4 -U>=T+E OR 8^ R)
Write a C++ program to perform the following steps in sequence: (13 mark)

1- Create a linked list.
2- Delete all operations.
3- Split the letters and numbers.
4- Display and draw the result.

Q5// Discuss and solve the following case. If you have random file of integer numbers, What is the best algorithm to find any number in the random file? (13 mark)
(Note: write a program to solve this case)