Vavuniya Campus of the University of Jaffna

First Examination in Information and Communication Technology - 2018

Second Semester - April/May - 2020

ICT1242 - Practical for Data Structures (Old Syllabus)

Answer All Questions

Time : Three hours

---

1. (a) Write a Java program to sort an array of given integers in ascending order using **Bubble Sort Algorithm.** [15%]

   (b) Write a Java program to sort an array of given integers in ascending order using **Insertion Sort Algorithm.** [15%]

   (c) Test your programs written in parts (a) and (b) using the array **A[ ]** given below.

	[0]	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
A [ ]	45	67	32	54	47	63	32	33	20	25

[10%]

2. (a) Write an interface for a stack in Java. You can assume that the elements in the stack are of *character* type. [07%]

(b) Write a class for the stack which implements the methods defined the interface written in the part (a). [08%]

(c) Write an application program to determine whether a given string is a **Palindrome** using the stack data structure. [10%]

(d) Show the output for the program written in part (c), using a typical input, 'LEVEL'. [05%]

3. (a) Write a Java class to represent the **queue** data structure using *a linear array*. [15%]

(b) Write a Java program to *reverse* the queue. You may use another empty queue. [10%]

(c) Test your result for the following Queue to reverse it.

Queue [ ] = { 10, 20, 30, 40, 50, 60 }

[05%]