

KARATINA UNIVERSITY
SCHOOL OF PURE AND APPLIED SCIENCE
DEPARTMENT OF COMPUTER SCIENCE AND INFORMATICS
COM 211 DATA STRUCTURES AND ALGORITHMS
CONTINUOUS ASSESSMENT TEST

Instructions:

Attempt all questions

Submit your handwritten answer sheet on 29.11.22

Question 1

- a) Describe the following sorting algorithms. [3 marks]
 - i. Insertion
 - ii. Selection
 - iii. Burble
- b) Explain quick sort's divide and conquer strategy. [3 marks]
- c) Describe the term graph as used in data structures and algorithms. [2 marks]
- d) Differentiate between directed and undirected graph. [2 marks]

Question 2

- a) Differentiate between the following terms: [4 marks]
 - i. Trees and graphs
 - ii. Breadth first search and Depth First search
- b) Describe three types of traversals that can be done by a Binary Search Tree. [6 marks]

Question 3

- a) Convert the following infix expressions into prefix and postfix expressions [4 marks]
 - i. $(U+V)*(W/(X-Y))$
 - ii. $U-(V-(W-X))$
- b) Study the sequence of numbers below and attempt the questions that follow.
54, 63, 32, 27, 48, 30
 - i. Make a Binary Search Tree [3 marks]
 - ii. Traverse the tree in postorder [3 marks]
 - iii. Traverse the tree in preorder [3 marks]

