

B.Sc. (Honours) Examination, 2019

Semester-II

Computer Science (Allied)

Course : BCSA-21 (Old)

Time : 3 Hours

Full Marks : 40

Questions are of value as indicated in the margin.

Answer **any four** questions.

1. a) What is a binary tree?
b) What is the minimum and maximum height of a binary tree having n nodes?
c) Provide a suitable data structure of a node of a binary tree. $2+(2+2)+4=10$
 2. a) What are Pre order, Post order and In order traversal of a binary tree? Give examples of each.
b) With an example of a binary tree comprising seven nodes, how preorder traversal is obtained from post order and inorder traversal. $(1+1) \times 3 + 4 = 10$
 3. a) Suggest an algorithm to delete an intermediate node from a double linked list. 6
b) Suggest an algorithm to insert an intermediate node into a single linked list. $6+4=10$
 4. a) What is an array? In which situation it is used?
b) Distinguish with example between static and dynamic array.
c) Compare and contrast single linked list and dynamic array. $(2+1)+4+3=10$
 5. a) What is a Binary Search Tree?
b) Construct a BST with the following data.
 10, 23, 16, 27, 11, 29, 53, 36, 31, 09 $3+7=10$
 6. Write short notes on (**any two**) : $5 \times 2 = 10$
 - a) AVL tree
 - b) Circular linked list
 - c) Hashing
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