R13

Code No: 812AF

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
MCA II Semester Examinations, October/ November - 2020
DATA STRUCTURES AND ALGORITHMS

Time: 2 Hours **Max. Marks: 60**

Answer any five questions
All questions carry equal marks

1.a) Write ADT of Stack procedures for insert and deletion operations.
b) Write a C++ program for converting the given infix expression into its prefix form using Stack. [12]

2.a) Discuss the asymptotic notations used in algorithm with examples.
b) Write a C++ program for Insert and deletion operations of an element in the singly Linked list. [12]

3. What is Heap? How to implement the priority Queues with heap Explain. [12]

4.a) Write a recursive procedure for Preorder and Post order traversal of binary tree.
b) Explain the different ways of representing graphs in memory with suitable example. [12]

5. Explain how divide conquer can be used to binary search. Express the time complexity by solving the corresponding recurrence relation. [12]

6. Explain with example the chaining method of resolving collisions in Hashing. [12]

7. Explain AVL trees with example. [12]

8. Construct an optimal binary search tree for the following data n=4, (a1,a2,a3,a4) = (do,if,int,while), p(1:4)=(3,3,1,1) and q(0:4)=(2,3,1,1,1). [12]

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