Total number of printed pages-02

2(Sem-8/FYUGP)BNC(A)/DSCI

2025

Computer Science

(Discipline Specific Core)

Paper Name: Data Structure & Algorithms Using C

Paper Code: **BCA-DSC-144**

Full Marks: 45

Time: Two Hours

(*The figures in the margin indicate full marks for the questions)*

Answer in English

1. Answer the following questions as directed: 1x4=4

(a) What is the full form of LIFO ?

(b) What is leaf node ?

(c) What is Linear Data structure ?

(d) Write time complexity of merge sort.

2. Answer any three from the following questions: 2x3=6

(a) What is an array ? Give example.

(b) What are the basic operations of queue ?

(c) Define Depth First Search.

(d) What is complexity of algorithm ?

(e) Define hashing.

3. Answer the following questions (any three): 5x3=15

(a) Construct a BST from the following numbers
69, 80, 73, 40, 33, 70, 1, 86, 90

(b) Explain overflow and underflow condition of Stack.

(c) Write the difference between BFS and NFS.

(d) Write an algorithm to perform binary search on given array of integers

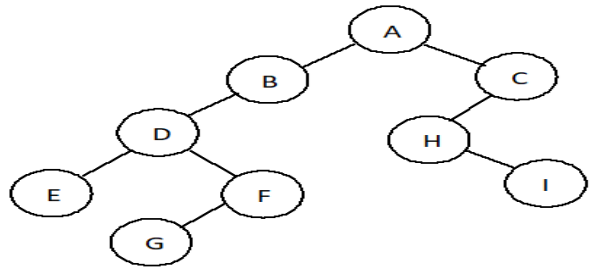
(e) What are the major limitations of linked list over an array? Explain the insertion procedure at first position of single linked list.

4. Answer any two of the following questions: 10x2=20

(a) Write a C program to multiply two square matrices.

(b) What is complexity of algorithm ? What are cases for complexity of algorithm ?

(c) What is binary tree ? Perform In order, Preorder and Post order traversal of the given tree.



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