

Roll No. 2282300078

Total No. of Questions : 8]

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EX-209

B.Tech. IIIrd Semester (New Scheme) CSE

Examination, 2022-23

Data Structure and Algorithms

Paper - CS-303

Time : 3 Hours]

[Maximum Marks : 60

Note :- All question carry equal marks. Attempt any five questions.

1. (a) Discuss various classification of data structures with an example?

(b) Write an algorithm for transversing of nodes in a single

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(1)

P.T.O.

linked list ?

2. (a) What is a binary search tree ? Write down its properties

suggest on example ?

(b) Explain briefly :-

(i) B Tree

(ii) Red Black tree

3. (a) Explain divide and conquer technique ?

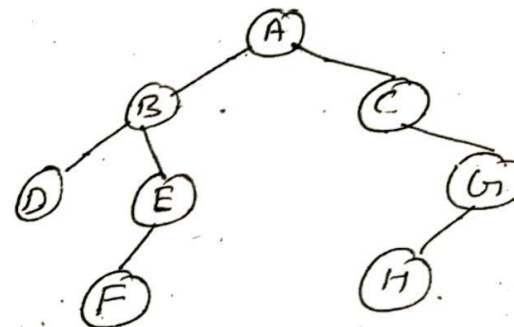
(b) Explain quick sort ? Sort the following elements using quick sort ?

4. (a) Sort the following array using heap sort techniques.

(5, 8, 3, 9, 2, 10, 1, 45, 32)

(b) Explain prim's algorithm with example.

5. (a) Show preorder, inorder and post orders for following tree.



(b) Discuss in detail NP complete problem with example ?

6. (a) Consider the knapsack instance $n = 3$, $(w_1, w_2, w_3) = (2, 3, 4)$ and $(P_1, P_2, P_3) = (1, 2, 5)$ and $m = 5$ find the optimal solution.

7. (a) Explain AVL Tree insert the following elements in AVL search tree 50, 25, 10, 5, 7, 3, 30, 20

(b) What is hash function ? Write down various popular hash function name.

8. (a) Differentiate between depth first search & Breadth first search algorithm ?

(b) Explain various algorithm used in data structure ?

AJEET SONI
