IH Used Paper BTECH-13-10-20

R16

Code No: 135AF

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year I Semester Examinations, October - 2020
DESIGN AND ANALYSIS OF ALGORITHMS
(Common to CSE, IT)

Time: 2 hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
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1.a) Explain the general method of divide and conquer with an example.
b) Write an algorithm for stressan's matrix multiplication and analyze the complexity of your algorithm. [7+8]

2.a) List the disjoint set operations and explain with examples.
b) Explain GRAPH coloring problem with example. Analyze the running time for that problem/algorithm. [7+8]

3. Differentiate between prim's algorithm and krushkars algorithm for finding the minimum cost spanning tree. [15]

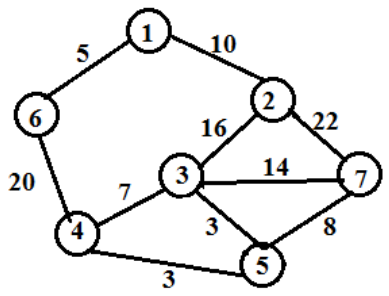
4.a) Write an algorithm of all pairs shortest path problem.
b) Solve the following 0/1 Knapsack problem using dynamic programming
P= (11, 21, 31, 33), W= (2, 12, 23, 15), C=42, n=4. [7+8]

5.a) Compare NP Hard and NP Complete.
b) Explain about 0/1 Knapsack Problem using branch and bound with example. [7+8]

6. Explain the merge sort algorithm with an example. Design an algorithm for merge sort. [15]

7.a) Explain the major drawbacks of backtracking method with example.
b) Write an algorithm for sum of subsets problem. [8+7]

8.a) Write an algorithm for Knapsack problem using Greedy method.
b) Find the optimal solution by using primis minimum cost spanning of the following graph. [7+8]



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