
 <b>SURESH GYAN VIHAR UNIVERSITY</b> <small>Accredited by NAAC with 'A' Grade</small>		<b>INTERNAL ASSIGNMENT - 1</b>
<b>Course</b>	<b>MCA</b>	<b>Design &amp; Analysis Of Algorithm</b>
<b>Semester</b>	<b>4</b>	
<b>Total Marks:</b>	<b>15</b>	

**Q.1. Write answers for any two questions from below. (5 marks each – Word limit – 500)**

- A. Give the algorithm for matrix multiplication and find the time complexity of the algorithm using step-count method.
- B. A motorist wishing to ride from city A to B. Formulate greedy based algorithms to generate shortest path and explain with an example graph.
- C. Let the dimensions of A, B, C, D respectively be 10X5, 5X15, 15X8, 8X20 generate matrix product chains that produces minimum number of matrix multiplications using dynamic programming.

**Q.2. Write short notes on all of the following topics (1 mark each - Word limit - 100)**

- A. What is Amortized analysis? Explain.
- B. Define Chromatic number & Give the state space tree for 4-coloring problem.
- C. Space Complexity
- D. Explain LC branch and bound algorithm.
- E. State the Subset Sum problem.

 <b>SURESH GYAN VIHAR UNIVERSITY</b> <small>Accredited by NAAC with 'A' Grade</small>		<b>INTERNAL ASSIGNMENT - 2</b>
<b>Course</b>	<b>MCA</b>	<b>Design &amp; Analysis Of Algorithm</b>
<b>Semester</b>	<b>4</b>	
<b>Total Marks:</b>	<b>15</b>	

**Q.1. Write answers for any two questions from below. (5 marks each – Word limit – 500)**

- A. What is a Minimum Cost Spanning tree? Explain Kruskal's Minimum cost spanning tree algorithm with suitable example.
- B. Explain the basic methodology of divide and conquer algorithm. List the advantages of divide and conquer algorithm.
- C. Write a function to compute lengths of shortest paths between all pairs of nodes for the given adjacency matrix.

**Q.2. Write short notes on all of the following topics (1 mark each - Word limit - 100)**

- A. Describe the Algorithm Analysis of Binary Search.
- B. What is Amortized analysis of algorithms?
- C. Feasible solution
- D. What is the importance of knapsack algorithm in our daily life?
- E. Define Minimum Cost Spanning tree and list its applications.