SIDDHARTH GROUP OF INSTITUTIONS :: PUTTUR
Siddharth Nagar, Narayanavanam Road – 517583

QUESTION BANK (DESCRIPTIVE)

Subject with Code : DAA(16CS521)   **Course & Branch**: B.Tech -CSE

Year & Sem: III B.Tech & I Sem   **Regulation:** R16

UNIT –I

1. What is asymptotic notation? Explain different types of notations with examples?   10M

2. Briefly explain the time complexity and space complexity estimation with example?   10M

3. Describe about the performance analysis in detail with Example?   10M

4. What do you mean by algorithm? List some of the properties of it?   10M

5. Write the rules of Pseudo code for Expressing Algorithms?   10M

6. Briefly explain Binary tree traversals with examples?   10M

7. Briefly explain Graph traversals with examples?   10M

8. Write about Union and Find algorithms with Example and find Time complexity?   10M

9. Define Disjoint sets? Explain different types of disjoint sets operations with examples?   10M

10. Briefly explain the connected components and Spanning trees with example?   10M

UNIT –II

1. Write about Binary Search algorithm with Example and find Time complexity?   10M

2. Write about Quick sort algorithm with example & time complexity?   10M

3. Write about Merge sort algorithm with example & time complexity?   10M

4. Explain in detail about the Stressen's matrix multiplication with time complexity?   10M

5. Explain Knapsack problem by using Greedy approach with Example?   10M

6. a)Explain the general Greedy method with an algorithm?   5M

   b) Explain the general divide-and-conquer method with an algorithm?   5M

8. Explain job sequencing deadlines by Greedy technique with your own example?   10M

9. What is spanning tree? Explain the Prim's algorithm with an example?   10M

10. What is spanning tree? Explain the Kruskals algorithm with an example?   10M

DESIGN AND ANALYSIS OF ALGORITHMS

UNIT –III

1. Explain travelling sales man problem with an example by using dynamic programming?   10M

2. Explain all pairs shortest path problem with an example by using dynamic programming?   10M

3. Explain 0/1 knapsack problem by using backtracking with an example?   10M

4. Explain 0/1 knapsack problem by using dynamic programming with an example?   10M

5. Describe in detail 8-queens problem using back tracking?   10M

6. Briefly explain the optimal binary search trees with example?   10M

7. .Describe in detail graph coloring using back tracking?   10M

8. .Describe in detail Hamiltonian cycles using back tracking?   10M

9. Explain any one application of dynamic programming with example?   10M

10. Explain any one application back tracking with example?   10M

UNIT –IV

1. Explain the general method of branch and bound?   10M

2. Apply branch and bound to 0/1 knapsack problem and elaborate it?   10M

3. Explain the method of reduction to solve TSP problem using branch and bound?   10M

4. Explain the principles of FIFO branch and bound?   10M

5. a)Explain the properties of LC-search?   5M

  b) Explain control abstraction of LC-branch and bound?   5M

6. Briefly explain the FIFO brach and bound solution with example?   10M

7. Briefly explain the LC brach and bound solution with example?   10M

8. State 0/1 knapsack problem and design an algorithm of LC Branch and Bound and find the solution for the knapsack instance with any example?   10M

9. Explain any one application of branch and bound?   10M
10. Apply the branch-and- bound technique in solving the travelling salesman problem?   10M

UNIT –V

1. Briefly explain the non-deterministic algorithms with example?   10M

2. Distinguish between deterministic and non-deterministic algorithms?   10M

3. Write the non-deterministic sorting algorithm and also analyze its complexity?   10M

4. Explain the class of P and NP with example?   10M

5. Differentiate between NP- complete and NP-hard problems?   10M

6. State and explain cook's theorem?   10M

7. Explain the strategy to prove that a problem is NP-hard?   10M

8. Explain the satisifiability problem and write the algorithm?   10M

9. What is halting problem explain with an example?   10M

10. Briefly explain the classes NP-hard and NP-complete?   10M

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