6 Lecture - CS502

Important Mcqs

1. **Which of the following is not a characteristic of Dynamic Programming?**
   A. It is a top-down approach
   B. It is based on recursion
   C. It involves solving subproblems only once
   D. It is a brute force technique
   Answer: D

   Which of the following is the main goal of Dynamic Programming?
   A. To solve complex optimization problems
   B. To solve linear equations
   C. To simplify algorithms
   D. To generate random numbers
   Answer: A

   Which of the following is an example of a problem that can be solved using Dynamic Programming?
   A. Sorting an array of integers
   B. Finding the shortest path in a graph
   C. Calculating the factorial of a number
   D. Generating random strings
   Answer: B

   What is the time complexity of Dynamic Programming?
   A. O(n)
   B. O(n log n)
   C. O(n^2)
   D. It depends on the problem being solved
   Answer: D

   Which of the following is a common technique used in Dynamic Programming?
   A. Binary search
   B. Bubble sort
   C. Memoization
   D. Quick sort
   Answer: C

   Which of the following is a disadvantage of using Dynamic Programming?
   A. It can be time-consuming
   B. It requires advanced mathematical knowledge
   C. It can lead to memory overflow
   D. It cannot be used for optimization problems
   Answer: C

   What is the difference between memoization and tabulation in Dynamic Programming?
   A. Memoization involves storing solutions in a table, while tabulation involves solving

subproblems recursively.
B. Memoization involves solving subproblems recursively, while tabulation involves storing solutions in a table.
C. Memoization and tabulation are the same thing.
D. Memoization is only used for top-down approaches, while tabulation is only used for bottom-up approaches.
Answer: B

Which of the following is an example of a problem that can be solved using both recursive and iterative approaches?
A. Finding the nth Fibonacci number
B. Calculating the sum of an array of integers
C. Sorting an array of integers
D. Generating random numbers
Answer: A

Which of the following is not a step involved in solving a problem using Dynamic Programming?
A. Breaking down the problem into smaller subproblems
B. Storing the solutions of each subproblem in a table
C. Solving the subproblems in a random order
D. Combining the solutions of each subproblem to solve the original problem
Answer: C

Which of the following is a common optimization technique used in Dynamic Programming?
A. Greedy algorithm
B. Divide and conquer
C. Backtracking
D. Branch and bound
Answer: A