Q.20 What are Dijkstra's algorithms and how are they implemented? (CO4)

Q.21 Describe the Quick sort Algorithm. (CO3)

Q.22 Explain Linear Search with Example. (CO3)

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Define Tree Traversal. List some of the algorithms to traverse a Binary Tree. Explain any one. (CO3)

Q.24 Explain Merge Sort Algorithm with the help of an Example. (CO3)

Q.25 Explain various Algorithm design techniques. (CO4)

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4th Semester/ Artificial Intelligence & Machine Learning
Subject : Algorithm Design Techniques

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 What should be considered when designing an algorithm? (CO1)

a) If the software is used correctly
b) If the hardware is used correctly
c) If there is more than one way to solve the problem
d) All of the above

Q.2 _____ is the maximum amount of time an algorithm takes to execute a specific set of inputs. (CO2)

a) Running Time
b) Average case time complexity
c) Worst case time complexity
d) Best care time complexity

Q.3 Which of the following sorting algorithms provide the best time complexity in the worst case scenario.

a) Bubble Sort b) Selection Sort(CO3)

c) Quick Sort d) Merge Sort

Q.4 Among the following options which is the best sorting algorithm when the list is already sorted. (CO3)

a) Merge Sort b) Insertion Sort

c) Selection Sort d) Bubble Sort

Q.5 Which of the following algorithms are used to find the shortest path from a source node to all other nodes in a weighted graph? (CO4)

a) Dijkstra's Algorithm b) BFS

c) Prim's Algorithm d) Kruskal's Algorithm

Q.6 The Prim's algorithm for finding the minimum spanning tree is based on _____ approach. (CO4)

a) Divide & Conquer

b) Dynamic programming

c) Greedy

d) Backtracing

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Define Flow-Chart. (CO1)

Q.8 Which data structure is used for implementing BFS traversal? (CO1)

Q.9 Define Time complexity. (CO2)

Q.10 Write the names of different Asymptotic Notations. (CO2)

Q.11 Define Knapsack problem. (CO3)

Q.12 Give two Examples of Divide and Conquer Algorithm. (CO3)

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Define Algorithm. What is the need for an algorithm? (CO1)

Q.14 How can we compare between two algorithms written for the same problem? (CO2)

Q.15 Write a short note on different Asymptotic Notations. (CO2)

Q.16 Write the differences between BFS and DFS. (CO3)

Q.17 Explain the Divide and Conquer Algorithmic paradigm with Example. (CO3)

Q.18 Devise an algorithm to insert a note in Binary search tree. (CO3)

Q.19 Write how to analyze the performance of an algorithm. (CO2)