

PD-274
(562) M.Sc. COMPUTER SCIENCE (SECOND SEMESTER)
Examination JUNE 2021
Paper-I

Name/Title of Paper- ANYLYSIS AND DESIGN OF ALGORITHM
Time: 3:00 Hrs.]

[Maximum Marks: 80
[Minimum Pass Marks: ---

Note: Answer from Both the Section as Directed. The Figures in the right-hand margin indicate marks.

Section(A)

1. Answer the following very short answer type questions.
 - a. An algorithm that utilizes the past results and uses these to find the new result is Dynamic Programming algorithm. (State True/False)
 - b. An _____ is a finite Sequence of well defined instructions used to Solve any problem.
 - c. Average case time complexity of merge sort is _____.
 - d. The Worst case occur in linear Search algorithm when _____.
 - e. _____ data Structure is used to implement Breadth first Search.
 - f. A Person Starts from a vertex and then visits every till it finishes from are restex backwards and then explore other vertex from the same vertex. He uses _____ FS.
 - g. Dijkstra's algorithm can be used to solve single Source shortest path problem. (State True/False)
 - h. Kruskal's Algorithm uses a _____ algorithm approach.
 - i. Dynamic programming approach takes far legs time as compared to other methods that don't take advantages of overlapping sub problems. [State True/False]
 - j. The Problem of placing n Dreams in a chess board such that no two queens attack each other is Known as _____.
2. Answer the following Short answer type questions.
 - a. What is meant by Space & time Complexity?
 - b. Define NP Completeness.
 - c. Differentiate the between Directed & Undirected graph.
 - d. Define Single Source Shortest Path.
 - e. Define Dynamic Programming.

Section(B)

Answer the following long answer type questions.

Unit-I

3. Explain different types of asymptotic Notations used to represent the complexity of an algorithm.
Or
Describe basic algorithm design techniques.

Unit-II

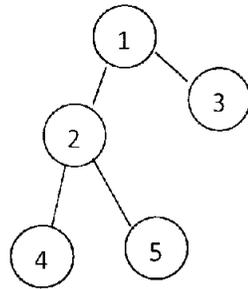
4. Write an algorithm for merge sort Explain and analyze it using Suitable Example.

Or

What is Binary Search? Write an algorithm and analyze its complexity.

Unit-III

5. Explain Depth first search Algorithm. What Will be the result of depth first Traversal in the following.



Or

Explain topological sort with suitable example.

Unit-IV

6. Explain job sequencing with deadline giving Suitable Example.

Or

Write Short Note on:

- a. Knapsack Problem
- b. Prim's algorithm.

Unit-V

7. Explain Traveling Salesmen problem along with suitable example.

Or

Write short note on:

- a. Warhol's algorithm.
- b. Branch & Bund algorithm.