

Ref No: CUIET/CSE/ACAD/2025/587

Date: 12th December 2025

NOTICE

ATTENTION: - B.E CSE Batch 2023

Test Type: ST

Test No: 2

Total Marks: 40

Duration: 90 Minutes

Name of Course Coordinator: Dr. Astha Gupta

Course Code: 22CS025

Course Title: Algorithm Design & Implementation (ADI)

Day: Thursday

Date: 18/12/2025

Time: 9:00 AM to 4:00 PM

Mode: Online (On-Campus) **Semester:** B.E. (CSE) & 5th Sem

Platform: Testpad

Groups: G1 – G12, G14 – G29

Specialization : Full Stack Engineering, iPhone Operating System, Cyber Security

Syllabus for Test: (As Per CHO-Lecture No. 34-96): Heap: Min Heap, Max Heap, Operations on Heap, Priority Queues, Practice Problem: Find max/min in the continuous stream of data, sort an array using heap sort, Check if a given tree is max-heap or not. Greedy Algorithms: Introduction, Fractional Knapsack, Job Scheduling, Bellman Ford. Dynamic Programming: Introduction, Memorization, Optimal Substructure and Overlapping Subproblem, 0/1 Knapsack, Matrix Chain Multiplication, Travelling Salesman Problem, Longest Common Subsequence. Practice Problem: Longest Common Subsequence (LCS), Count number of ways to cover a distance, Matrix Chain Multiplication problem, 0-1 Knapsack problem. Graph: Introduction, Types, Traversal - BFS and DFS, Prim's Algorithm, Kruskal's Algorithm. Practice Problem: Find the cycle in an undirected graph, Find the minimum number of edges in a path of a graph, find path in a directed graph, Find the number of islands. Greedy Algorithms (Advanced): Dijkstra, Bellman-Ford. Practice Problems: Interval Scheduling, Job Scheduling with Deadlines. Hashing: Intro, Collision Handling Techniques. Practice Problem: Noise In the Library, try balancing the scale, Find out the winner.

Format of Assessment:

1 Marks MCQs :10

2 Mark MCQs: 5

5 Marks Coding Question: 2

10 Marks Coding Question: 1

Signature of Course Coordinator (Dr. Astha Gupta)