

AU – 2892 Add

Seventh Semester B. E. (Computer Science and Engineering) Examination

DESIGN AND ANALYSIS OF ALGORITHMS

Paper – 7 KS 03

(USC – 10342)

P. Pages : 3

Time : Three Hours]

[Max. Marks : 80

- Note :** (1) All questions carry equal marks.
(2) Due credit will be given to neatness and adequate dimensions.
(3) Assume suitable data wherever necessary.
(4) Illustrate your answer wherever necessary with the help of neat sketches.
(5) Use pen of Blue/Black ink/refill only for writing the answer book.

1. (a) List and explain the different algorithm strategies. 7
(b) Explain with example conversion of an iterative function to a recursive function. 6

OR

2. (a) What is the importance of Asymptotic notations ? Explain with the help of Big – Oh and theta notations. 7
(b) What are the different techniques to improve the efficiency of Algorithms ? 6

3. (a) Explain Strassen's Matrix Multiplication algorithm with example. 7
(b) What is triangulation ? Explain with different applications of it. 6

OR

4. (a) Explain the concept of closest pair. Explain the closest pair algorithm. 7
(b) What are the Drawbacks of Divide and Conquer strategy ? Explain with any one example. 6

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5. (a) Explain Dijkstra Algorithm to find the shortest path from single source to other nodes of a graph with proper example. 14

OR

6. (a) What is Greedy algorithm ? What are the advantages and disadvantages ? 7
(b) Explain the knapsack algorithm with suitable example. 7
7. (a) Explain optimal polygon triangulation with suitable example. 7
(b) Explain single source shortest path with example. 7

OR

8. (a) Explain Dynamic programming with multistage graph. 7
(b) Explain travelling salesman problem with the help of example. 7
9. (a) What are the advantages of Back tracking ? Explain with proper example. 7
(b) Explain DFS (Depth First Search) Algorithm with example. Explain in which case DFS is better than BFS (Breadth First Search) Algorithm. 6

OR

10. (a) State and Explain 8 – queen problem with the help of Backtracking strategy. 7
(b) What is combinational search ? Explain with example. 6
11. (a) Explain Time – Space Trade off with the help of Space efficient and time efficient solution. 7
(b) Give the time analysis of Algorithms. Explain using any sorting algorithms. 6

OR

12. (a) Explain complexity using step counting principle. 7
- (b) Explain the complexity of set operation and mapping. 6

