

Total No. of Questions : 8]

SEAT No :

P 3105

[5154]-671

[Total No. of Pages :2

B.E.(Computer Engineering)
DESIGN AND ANALYSIS OF ALGORITHMS
(2012 Course) (Semester-I) (410441)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Attempt Q.1 OR Q.2, Q.3 OR Q.4, Q.5 OR Q.6, Q.7 OR Q.8.
- 2) Figures to the right indicate full marks.
- 3) Draw neat diagrams wherever necessary.
- 4) Make suitable assumptions wherever necessary.

Q1) a) Explain Big Oh (O), Omega (Ω) and Theta (θ) notations in detail along with suitable examples. [6]

b) Write an algorithm for Knapsack problem using Greedy Strategy. [6]

c) Write a short note on 8-queens problem. Write algorithm for the same. [8]

OR

Q2) a) Calculate the Average case time complexity of $f(n) = 3n(n^2-n) + 2n + 5$ using running time complexity. [6]

b) Write an algorithm for optimum binary search tree. [6]

c) Explain in detail backtracking strategy and give control abstraction for the same. [8]

Q3) a) Give and explain relationship between P, NP, NP complete and NP Hard. [8]

b) Explain Non-Deterministic clique problem along with algorithm. [8]

OR

Q4) a) Give and Explain Non-Deterministic sorting algorithm. [8]

b) Prove that Vertex cover problem is NP-complete. [8]

P.T.O.

- Q5)** a) Explain in detail Dining philosopher's problem. [8]
b) Give and explain Minimum Spanning Tree algorithm. [8]

OR

- Q6)** a) Write an algorithm for finding Parallel shortest paths. Also comment on the time complexity of this algorithm. [8]
b) Explain in detail with example Sequential and Parallel computing. [8]

- Q7)** a) Give and explain Dijkstra-Scholten algorithm. [9]
b) Explain in detail Sorting algorithm for embedded Systems. [9]

OR

- Q8)** a) Write a short note on Internet of Things Algorithm. [9]
b) Give and explain String matching algorithm. [9]

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