

Total No. of Questions : 8]

SEAT No. :

P3216

[Total No. of Pages : 2

[5354]-671

B.E. (Computer Engineering)
DESIGN & ANALYSIS OF ALGORITHMS
(2012 Pattern) (End Semester)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8.*
- 2) *Neat diagram must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *Assume suitable data, if necessary.*

- Q1)** a) Explain divide and conquer strategy with example. [8]
b) Explain the following terms with reference to greedy technique.
i) Feasible solution and optimal solution.
ii) Control of abstraction. [8]
c) What are the general characteristics of branch and bound approach?[4]

OR

- Q2)** a) Define asymptotic notations. Explain their significance in analyzing algorithms. [4]
b) Write the algorithm for solving the problem of optimal binary search tree (OBST) Give its time complexity. [8]
c) Write the algorithm for m-coloring graph using backtracking strategy with its time complexity. [8]

- Q3)** a) Explain in brief NP complete problem. Prove that the clique decision problem (CDP) is NP complete problem. [8]
b) Explain the concept of approximation algorithm in brief. [8]

OR

- Q4)** a) What are P and NP classes explain with examples? What is their relationship? [8]
b) Explain the concept of Randomized algorithm and Approximation algorithm in brief with example. [8]

P.T.O.

- Q5)** a) What is dining philosophers problem? Write concurrent algorithm for the same. [8]
b) How parallel algorithms can be used to solve graph problems? [8]

OR

- Q6)** a) What is parallel computing? Which are the different parallel computing models explain in brief. [8]
b) How parallel computing can be applied to obtain minimum spanning tree using Kruskal's algorithm? [8]

- Q7)** a) Write short note on power optimized scheduling algorithm used in embedded systems. [9]
b) What is Internet of Things (IoT)? Explain different elements of IoT. [9]

OR

- Q8)** a) Explain in detail Bully algorithm for dynamically selecting a coordinator in distributed system. [9]
b) Explain data management algorithms and clustering used in IoT. [9]

