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]**

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