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Question Paper Code: 34204

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Fourth Semester

Computer Science and Engineering

01UCS404 - DESIGN AND ANALYSIS OF ALGORITHMS

(Regulation 2013)

Duration: One hour

Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

- The main measure for efficiency algorithm are
 - Processor and Memory
 - Complexity and Capacity
 - Data and Space
 - Time and space
- The time complexity of binary search is
 - $O(1)$
 - $O(\log n)$
 - $O(n)$
 - $O(n \log n)$
- For the improvement of efficiency of quick sort the pivot can be
 - the first element
 - the mean element
 - the last element
 - None of these
- Best case time complexity of Quick sort is
 - $O(n^2 \log n)$
 - $O(\log n)$
 - $O(n \log n)$
 - $O(\log n^2)$
- The OBST algorithm in worst case takes _____ time if all $c(i, j)$'s and $r(i, j)$'s are calculated.
 - $O(\log n)$
 - $O(n^4)$
 - $O(n^3)$
 - $O(n \log n)$

6. Prim's algorithm is based on _____ method
- (a) Divide and conquer method (b) Greedy method
(c) Dynamic programming (d) Branch and bound
7. A linear programming problem which does not have an optimal solution is called
- (a) Unbounded (b) Infeasible
(c) Feasible (d) Non-optimal
8. A linear programming problem which does not have an optimal solution is called
- (a) unbounded (b) infeasible
(c) feasible (d) non-optimal
9. A decision problem D is said to be NP-complete if
- (a) It belongs to class NP (b) NP reduces to D
(c) only (a) (d) both (a) and (b)
10. N-queens problem is solved using
- (a) branch and bound (b) backtracking
(c) both (a) and (b) (d) approximation algorithm

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Briefly explain the steps in mathematical analysis of recursive algorithms. (8)
12. Write an algorithm for Quicksort and sort the list 5, 3, 1, 9, 8, 2, 4, 7. Also find its time complexity. (8)
13. What is optimal binary search tree? Write the algorithm to find the optimal binary search tree by dynamic programming. (8)
14. Briefly explain the stable marriage problem. Find the best and worst case time complexity. (8)
15. Explain in detail about assignment problem. (8)