KUMARAGURU
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Register Number: ……..

B.E / B.TECH DEGREE EXAMINATIONS: DEC 2014

(Regulation 2009)

Third Semester

CSE 104: DESIGN AND ANALYSIS OF ALGORITHMS

(Common to CSE/IT)

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Which of the following notation is used to represent a function that grows lesser than reference function?
   a) Onnesa b) Theta
   c) Bigo d) Small O
2. A _____ is a mixture of natural language and programming language like constructs.
   a) Algorithm b) Pseudocode
   c) Flowchart d) Graph
3. Algorithm _____can be defined as the use of images to convey some useful information about algorithms.
   a) Visualization b) Analysis
   c) Search d) Efficiency
4. The worst case time complexity of linear search is
   a) O (n) b) O (n/2)
   c) O (n^2) d) O (log n)
5. Worst case efficiency for selection sort is_____
   a) Θ(n log n) b) O (n)
   c) Θ(n^2) d) Θ(log n)
6. Quick sort select a _____element for partitioning.
   a) Small b) large
   c) Pivot d) Recursive

7. The Balance factor of a node in a AUL tree can be

   a) 2,0,1 b) -2,0,1

   c) 0,1,2 d) 1,1,1

8. Which algorithm is used to find Minimum spanning tree.

   a) Prim's b) Dijikstra's

   c) Design d) Floyds

9. The optimal solution is a _____solution with the best value of the objective function.

   a) Optimum b) Feasible

   c) Correct d) Good

10. A node in a state-space tree is said to be _____if it corresponds to a partially constructed solution that may still lead to a complete solution.

    a) Nonpromising b) Finite

    c) Promising d) Infinite

PART B (10 x 2 = 20 Marks)

11. What is an algorithm?
12. Give any two examples for O (n^2) algorithm.
13. Build a non-recursive algorithm to find out the largest element in a list of n numbers.
14. What do you mean by empirical analysis of algorithms?
15. Show the recurrence relation of divide-and-conquer.
16. Outline Brute force approach.
17. Define dynamic programming.
18. List out the drawbacks of AVL trees.
19. What do you mean by backtracking?
20. What do you mean by travelling sales problem?

PART C (5 x 14 = 70 Marks)

21. a) Discuss in detail about the all asymptotic notations and basic efficiency classes.

(OR)

b) Explain Analysis framework with suitable example.

22. a) Elaborate briefly about Algorithmic visualization.

(OR)

b) With any two example explain non recessive algorithm.

23. a) Discuss the concepts of merge sort method and analyze its complexity. Trace for 8, 3,2,97,1,5,4.

(OR)

b) Explain in detail about the Breadth First Search and Depth first search.

24. a) Formulate the algorithm for Prim's and Kruskal's Algorithm.

(OR)

b) Discuss in detail about Huffman Tree.

25. a) Demonstrate the concepts of traveling salesperson problem with suitable example.

(OR)

b) Analyze in detail about Assignment Problem.

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