

G 2222

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Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, APRIL 2010

Sixth Semester

Branch : Computer Science and Engineering

ALGORITHM ANALYSIS AND DESIGN (R)

(Regular—2007 admissions ; Supplementary—Prior to 2007 admissions)

Time : Three Hours

Maximum : 100 Marks

Answer all questions.

Part A

Each question carries 4 marks.

1. What is an algorithm ? List the properties of it.
2. What is non-deterministic algorithm ? How it is different from deterministic algorithm ?
3. How many key comparisons are done by merge sort, if the keys are already in order when the sort begins ? Justify your answer.
4. Find the time complexity of binary search algorithm.
5. Describe control abstraction for greedy strategy.
6. Briefly explain about "minimum cost spanning trees".
7. Describe the principle of optimality.
8. Explain briefly about the functions of adversary arguments.
9. Explain the technical term "Knapsack problem".
10. Briefly explain the concepts of back tracking.

(10 × 4 = 40 marks)

Part B

Each question carries 12 marks.

11. Explain in detail about computational procedure and program.

Or

12. Discuss in detail about recursive algorithms and space and time complexity.
13. Explain in detail about binary search with an example.

Or

14. Write a short note on "Merge Sort and Quick Sort".
15. Explain knapsack problem. Also devise a greedy method to solve the problem.

Or

16. Describe Prim's algorithm. Find the time complexity for the algorithm.

Turn over

17. Explain travelling salesman problem. Suggest a solution for problem using dynamic programming.

Or

18. Explain the comparison trees for searching and sorting with suitable examples.
19. Discuss the sum of subsets problem and find a solution for it using back tracking method.

Or

20. Describe how 15 puzzle problem is solved.

(5 × 12 = 60 marks)