F 9419   (Pages : 2)   Reg. No................................

                                    Name..................................

B.TECH. DEGREE EXAMINATION, NOVEMBER 2011

Sixth Semester

Branch—Computer Science and Engineering

ALGORITHM ANALYSIS AND DESIGN (R)

(2002 Admissions onwards—Supplementary)

Time : Three Hours   Maximum : 100 Marks

Answers **all** *questions.*

Part A

Each question carries 4 marks.

1. What are the properties of an Algorithm ?
2. List out the differences between deterministic and non-deterministic algorithms.
3. Explain the differences between Merge sort and Quick sort.
4. Explain Divide–Conquer strategy with example.
5. What is the application of minimum cost spanning tree ?
6. Discuss about Prim's Algorithm.
7. Write short note on 'Multi-stage graph'.
8. Explain the complexity of kth smallest element selection.
9. Define Bounding function.
10. Write short note on 'N-Queens Problem'.

                                                   (10 × 4 = 40 marks)

Part B

Each question carries 12 marks.

11. Discuss in detail about recursive algorithms, space and Time complexity and Asymptotic Notations.

                Or

12. Explain the Computational Procedure and Program.

13. Explain Stressen's Matrix Multiplication and discuss its time complexity.

                Or

14. Show the various steps involved in the Quick Sorting of (1, 3, 4, –5, 9, 2, 6, 5, 3)

15. Explain General Knapsack problem with an example.

                Or

16. Discuss about Kruskal's algorithm. Find the time complexity for the algorithm.

                                                   Turn over

17. Explain how to solve the Travelling salesman problem by the Dynamic Programming Approach.

Or

18. Write short notes on :

    (a) Principle of optimality.

    (b) Comparision Trees for Searching and Sorting.

    (c) Various methods in Tree–Sort.

    (4 marks)

    (4 marks)

    (4 marks)

19. Explain how to solve the 15 Puzzle problem by back tracking.

Or

20. Discuss the sum of subsets problem and find a solution for it using back tracking.

$(5 \times 12 = 60 \text{ marks})$