

G 6916

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Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, APRIL 2011

Sixth Semester

Branch : Computer Science and Engineering

ALGORITHM ANALYSIS AND DESIGN (R)

(Regular/Improvement/Supplementary)

Time : Three Hours

Maximum : 100 Marks

Answer all questions.

Part A

Each question carries 4 marks.

1. Briefly explain about pseudo code convertors.
2. Define omega notation of a function $f(n)$.
3. Write short note on Strassen's Matrix Multiplication.
4. Write a technical note on "Binary Search".
5. What are the various types of knapsack problems.
6. Briefly explain about optimal storage on tapes.
7. Define principle of Optimality.
8. Write short note on K^{th} smallest elements.
9. Discuss about bounding functions.
10. What is FIFO ? Compare FIFO and LIFO.

Part B

(10 × 4 = 40 marks)

Each full question carries 12 marks.

1. Find the Asymptotic Upper Bound for the function,

(a) $T_1(n) = 2T\left(\frac{n}{2}\right) + n^2$.

(b) $T_2(n) = 3T\left(\frac{n}{2}\right) + n$.

Or

(12 marks)

Turn over

12. Write short notes on :

- (a) Properties of an algorithm.
- (b) Recursive Algorithms.
- (c) Asymptotic Notations.

(4 marks)

(4 marks)

(4 marks)

13. Design an algorithm to evaluate the upper and lower bounds in heap sort. Explain with typical example.

(12 marks)

Or

14. Explain about merge sort and quick sort complexities.

(12 marks)

15. Explain Kruskal's Algorithm and its complexity.

(12 marks)

Or

16. Discuss an algorithm to find minimum cost spanning tree and its application and complexity.

(12 marks)

17. Explain the travelling salesman problem. Suggest a suitable solution for that.

(12 marks)

Or

18. Discuss about oracles and Adversary Arguments.

(12 marks)

19. Describe how 15 puzzle problem is solved.

(12 marks)

Or

20. Explain an algorithm to solve the "N" Queens problem.

(12 marks)

[5 × 12 = 60 marks]