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SEVENTH SEMESTER B.TECH. (ENGINEERING) DEGREE [2014 SCHEME] EXAMINATION NOVEMBER 2017

Computer Science Engineering

CS/IT 14 701—DESIGN AND ANALYSIS OF ALGORITHM

Time : Three Hours Maximum : 100 Marks

Part A

Answer any **eight.**

1. Discuss conditional big-oh notation.
2. Analyze the order of growth :

   (i) $F(n) = 2n2 + 5$ and $g(n) = 7n$. Use the $\Omega(g(n))$ notation.

3. List out the procedures to solve travelling salesman problem.
4. Explain fractional knapsack problem.
5. Differentiate dynamic programming and divide and conquer.
6. Summarize feasible and optimal solution.
7. Describe the Knapsack problem by using Exhaustive search.
8. Describe Huffman trees and its applications.
9. Explain convex hull problem and the solution involved behind it.
10. Discuss Monte Carlo algorithms in brief.

(8 × 5 = 40 marks)

Part B

Descriptive/Analytical/Problem solving questions.

11. (A) Discuss Quick Sort algorithm using an example.

Or

(B) Explain Merge Sort with suitable example.

12. (A) Discuss Warshall's Algorithm with suitable diagrams.

Or

(B) Explain Memory Function algorithm for the Knapsack problem.

Turn over

13. (A) Explain NP Hard and NP Complete problems in detail.

Or

(B) Show that the Hamiltonian path problem reduces to the Hamiltonian circuit problem.

14. (A) Elaborate Pseudo random number generation methods.

Or

(B) Explain the backtracking algorithm for the n-queens problem.

(4 × 15 = 60 marks)