Reg. No. : | | | | | | | | | | |

Question Paper Code: 34802

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2018

Fourth Semester

Information Technology

01UIT402 - ANALYSIS AND DESIGN OF ALGORITHMS

(Regulation 2013)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. What is an algorithm design technique?
2. What is meant by linear search?
3. List the general plan for analyzing the Time Efficiency of Non-recursive Algorithms.
4. What are the two principal variations of algorithm visualization?
5. What is divide and conquer technique?
6. Define Brute force algorithm.
7. List the important properties of heaps.
8. What is a Huffman code and tree?
9. State subset sum problem.
10. Define state - space tree.

PART - B (5 x 16 = 80 Marks)

11. (a) What is an algorithm? With a neat diagram, explain the various stages of algorithm design and analysis process. (16)

Or

(b) Explain all asymptotic notations used in algorithm analysis. (16)

12. (a) What is the mathematical analysis of recursive algorithms? Explain about the tower of Hanoi problem. (16)

Or

(b) Write a non-recursive algorithm to find whether the elements in a array are unique. Also analyze its efficiency. (16)

13. (a) What are the differences between DFS and BFS? Solve topological sorting problem using DFS algorithm with an example. (16)

Or

(b) What is brute-force method? Explain selection sort algorithm with an example. Analyse its efficiency. (16)

14. (a) Explain any five swing components that can be used in layout with suitable example program. (16)

Or

(b) Explain the Prim's algorithm and Kruskal's algorithm with suitable example to obtain minimum spanning tree. (16)

15. (a) Explain backtracking concept and apply same to n-Queen's problem. (16)

Or

(b) (i) Explain how Traveling salesman problem can be solved using branch and bound method. (8)

(ii) Draw the state space tree for the sum of subset problem of the instance: S = {3,5,6,7) and d=15. (8)