

B.TECH. SEM -VI INFO. TECH. 2014 COURSE (CBCS) :
SUMMER - 2018

SUBJECT: DESIGN AND ANALYSIS OF ALGORITHMS

Day : **Wednesday**
Date : **06/06/2018**

S-2018-2430

Time **02.30 PM TO 05.30 PM**
Max.Marks:60

N.B.

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Use of non-programmable **CALCULATOR** is allowed.
- 4) Neat diagram must be drawn **WHEREVEER** necessary.
- 5) Assume suitable data wherever necessary.

Q.1 Define data structure. What are elementary data structures? List elementary data structures and explain any two in detail. (10)

OR

What is "Performance Analysis" of algorithms? Elaborate the process of performance analysis of algorithms. (10)

Q.2 What is exhaustive search? State, explain and analyze either the travelling salesman problem or the Knapsack problem using exhaustive search. (10)

OR

How is brute force technique applicable to sorting? Explain and analyze with example any one brute force sorting algorithm. (10)

Q.3 What is divide and conquer strategy? State, explain and analyze any one sorting algorithm which uses divide and conquer strategy. (10)

OR

Explain the Strassen's matrix multiplication method in detail (10)

Q.4 Define dynamic programming strategy and solve the 0/1 knapsack problem stated below: (10)

The ship capacity is 10 and there are 4 items which can be added with the following weights and profits
 $n=4$ capacity = 10 $w=\{7, 2, 3, 6\}$ $P= \{ 25, 15, 20, 36\}$

OR

What is greedy method? Explain Prim's algorithm with example. (10)

Q.5 What is backtracking design strategy? State N-Queen's problem and solve 8 Queen's problem by stating one possible solution. (10)

OR

What is a Hamiltonian Circuit? How to solve the Hamiltonian Circuit problem using backtracking technique? (10)

Q.6 State two practical applications of greedy design technique. (10)

OR

State Heuristic search algorithm and explain with example. (10)

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