SV - 203

Seat No.	

Total No. of Pages : 2

T.E. (CSE) (Part - I) (Semester - V) (Revised)
Examination, May - 2019
COMPUTER ALGORITHM
Sub. Code : 66296

Day and Date : Monday, 06 - 05 - 2019 **Total Marks : 100**

Time : 02.30 p.m. to 05.30 p.m.

Instructions :
1) **Questions 4 and 8 are compulsory.**
2) **Attempt any four questions from remaining questions.**
3) **Figures to the right indicate full marks.**
4) **Assume suitable data wherever necessary.**

Q1) a) What is algorithm? Explain different characteristics of algorithm. **[8]**

b) Prove that the average case complexity of Quick Sort is O(nlogn). **[8]**

Q2) a) Give solution to Optimal Merge Pattern using greedy solution. **[8]**

b) Solve the following instance of reliability design problem with 3 stages. Cost of the system is 175. Cost of device in stage 1 is 40, stage 2 is 25 and stage 3 is 35. Reliabilities for the three devices are 0.75, 0.85, and 0.6 respectively. Number of devices available in stage 1 are 3, stage 2 are 3, and stage 3 are 2. **[8]**

Q3) a) Find optimal solution to given Knapsack problem using Greedy method.
N = 6, m = 20
(P1, P2, P3, P4, P5, P6): (12, 5, 15, 7, 6, 18) (w1, w2, w3, w4,w5,w6): (2, 3, 5, 7, 1, 5). **[8]**

b) Explain travelling sales person problem to find tour of minimum cost. **[8]**

Q4) Write short note on : **[18]**

a) Difference between Priori and Posteriori analysis.

b) Single Source Shortest Path.

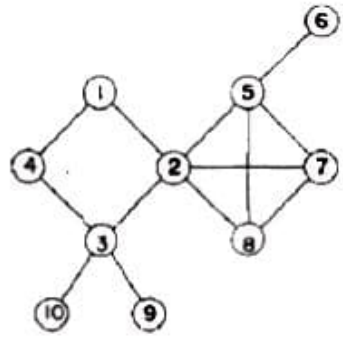
c) Greedy solution for minimum cost spanning trees.

P.T.O.

Q5) a) Explain solution to knapsack problem using back-tracking. **[8]**

b) Explain packet routing in square mesh and linear array. **[8]**

Q6) a) How DFS can be used to find an articulation point. Identify articulation points for the following undirected graph by using DFS spanning tree. **[8]**



b) Describe and give example of prefix computational model with PRAM. **[8]**

Q7) a) Draw and explain permutation tree for 4 queen problem using back-tracking. **[8]**

b) What is Non deterministic algorithm? Explain non deterministic searching and sorting algorithm. **[8]**

Q8) Write short note on: **[18]**

a) Define the following terms:

i) Deterministic and non-deterministic algorithms

ii) Decision and Optimization Problems

iii) P and NP Problems

b) Game tree

c) Data concentration with mesh and Hypercube.