SE - 203

Seat No.	

Total No. of Pages : 2

T.E. (CSE) (Semester - V) (Revised) Examination, November - 2018

COMPUTER ALGORITHM

Sub. Code : 66296

Day and Date : Wednesday, 28 - 11 - 2018 **Total Marks : 100**

Time : 10.00 a.m. to 01.00 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) Explain the Divide and Conquer approach for Quick Sort and write its algorithm **[8]**

b) Define and Explain Asymptotic Notations with the help of example **[8]**

Q2) a) Solve the following instance of knapsack 0/1 **[8]**
n=4, $(w_1, w_2, w_3, w_4) = (10,15,6,9)$ and $(p_1,p_2,p_3,p_4) = (2,5,8,1)$ capacity $m = 11$

b) Prove that the complexity of finding Minimum Maximum Algorithm is $(3n/2)-2$ **[8]**

Q3) a) What is the Solution generated by the function Job sequencing with deadlines when n=7 Profits = (3,5,20, 18,1,6,30) and deadlines=(1,3,4,3,2,1,2) **[8]**

b) Explain dynamic programming solution to travelling sales person problem. **[8]**

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

a) Optimal Binary Search Tree

b) Reliability design

c) Minimal spanning trees

Q5) a) What is node cover decision problem? Show that clique decision problem is reducible to node cover decision problem. **[8]**

b) What is deterministic list ranking problem in PRAM? Explain with example. **[8]**

P.T.O.

Q6) a) What is P, NP, NP-complete and NP-Hard problems? Explain their relationship with neat diagram. **[8]**

b) Let w [1:5] = {1, 2, 5, 6, 8}, m=9. Find all possible subsets of w that sum equal to m. Draw portion of state space tree that is generated. **[8]**

Q7) a) Explain BFS and DFS with suitable example. **[8]**

b) Explain prefix sum computation with the help of Mesh. **[8]**

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

a) AND-OR graph

b) Hamiltonian cycle

c) Butterfly Network