

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- 2024

B.Tech-IV Semester (CSE/IT)

COURSE CODE (CREDITS): 18B11CI412 (3)

MAX. MARKS: 35

COURSE NAME: Design & Analysis of Algorithms

COURSE INSTRUCTORS: Vivek Kumar Sehgal

MAX. TIME: 2 Hours

Note: (a) All questions are compulsory.

(b) Each Question Carries Equal Marks

1. Explain weighted union and collapsing find operation along with algorithms
2. Write graph coloring algorithm along with example state space tree for graph coloring
(Note: this algorithm is the answer for HAMILTONIAN CYCLE also)
3. Solve the following instance of 0/1 Knapsack problem using Dynamic programming $n = 3$; $(W_1, W_2, W_3) = (3, 5, 7)$; $(P_1, P_2, P_3) = (3, 7, 12)$; $M = 4$.
4. Discuss about n-queen problem
5. Write and explain recursive binary search algorithm
6. Distinguish between Quick sort and Merge sort, and arrange the following numbers in increasing order using merge sort. (18, 29, 68, 32, 43, 37, 87, 24, 47, 50)
7. Explain the characteristics of dynamic programming