



R20 Regulation

Subject code:3P4FE

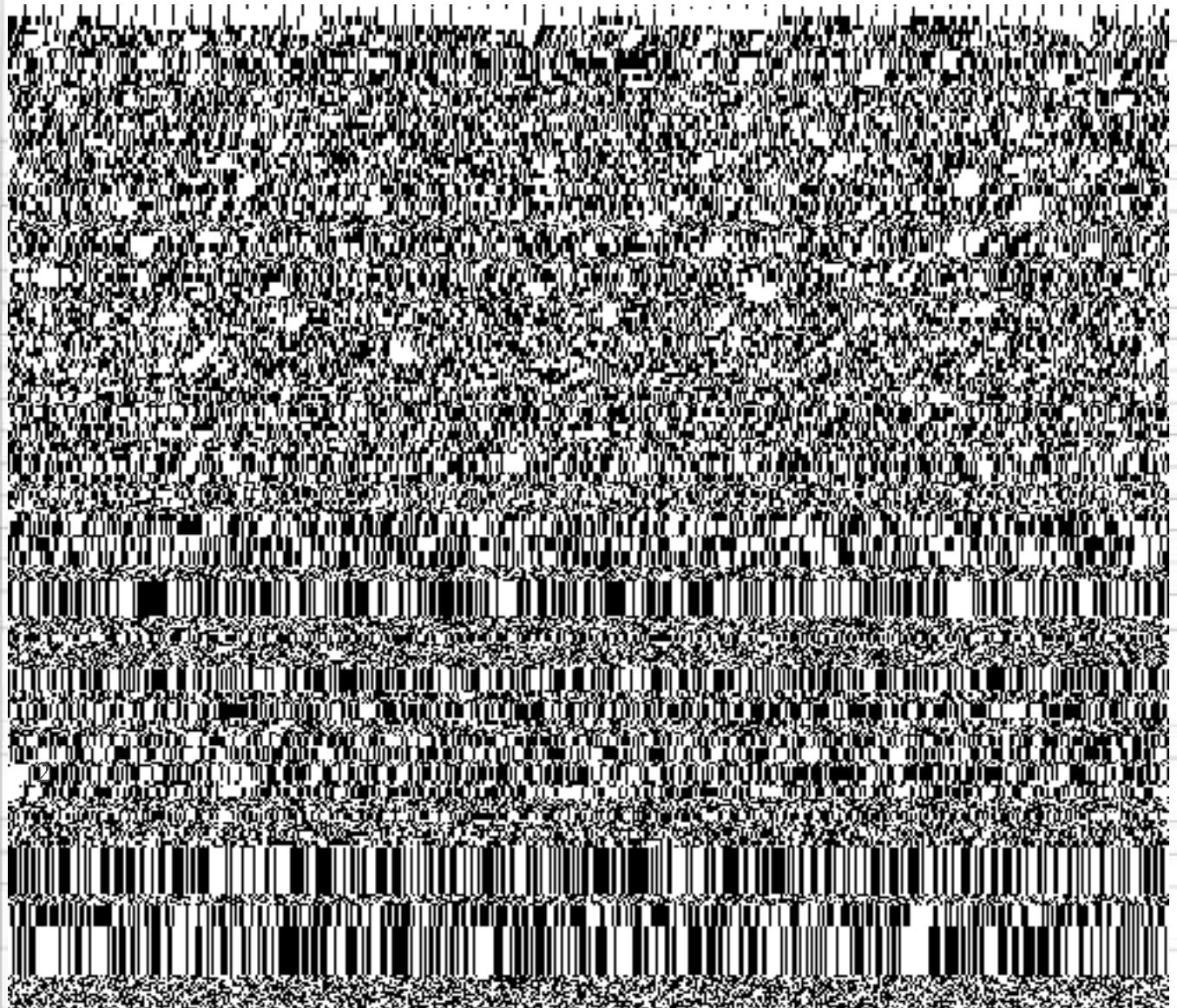
TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

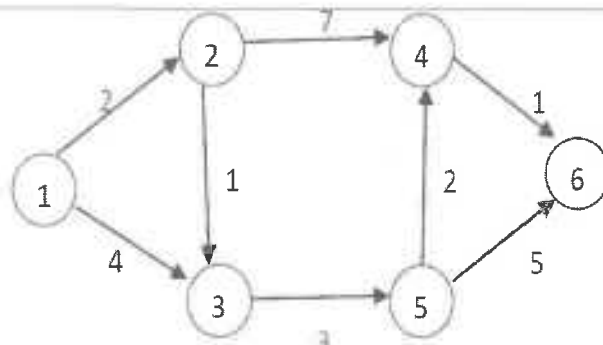
(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech IV Semester Supplementary Examinations, April 2025

DESIGN AND ANALYSIS OF ALGORITHMS

(IT)





OR

16	Discuss about fractional knapsack problem. Consider the following instance of knapsack problem $n=7$, $m=15$, profits $(p_1, p_2, p_3, p_4, p_5, p_6, p_7) = (10, 5, 15, 7, 6, 18, 3)$ and weights $(w_1, w_2, w_3, w_4, w_5, w_6, w_7) = (2, 3, 5, 7, 1, 4, 1)$. Obtain the optimal solution using greedy approach.	10M	3	L2
17	Explain how matrix-chain multiplication problem can be solved using dynamic programming with suitable example.	10M	4	L2
OR				
18	Describe the dynamic 0/1 knapsack problem. Find an optimal solution for the dynamic programming 0/1 knapsack instance for $n=4$, $m=8$, profits are $(p_1, p_2, p_3, p_4) = (1, 2, 5, 6)$, weights are $(w_1, w_2, w_3, w_4) = (2, 3, 4, 5)$.	10M	4	L2
19	a) Give the 0/1 Knapsack LCBB algorithm b) Differentiate between deterministic and non-deterministic algorithm	5M 5M	5	L2
OR				
20	a. Explain the satisfiability problem. b. Explain Cook's theorem	5M 5M	5	L2