

Enroll. No:

K.E.Society's
Rajarambapu Institute of Technology, Rajaramnagar.
(An Autonomous Institute, affiliated to SUK)

QP. Code:

Unit Test-02

Third Year, B. Tech, INFORMATION TECHNOLOGY, SEMESTER – VI
Course: Computer Algorithms, Course Code: IT3031

Day & Date:

Time:

Max Marks: 25

- Instructions:
1. All questions are compulsory.
 2. Answer any one full question where ever OR option is made available.
 3. Figures to the right indicate: CO: Course Outcome, BL: BLOOMS Level & Marks.

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- | | CO | BL | Marks |
|--|----|----|-------|
| Q.1 (a) Explain divide and conquer method along with its control abstraction. Also write DAC (Divide and Conquer) algorithm for finding minimum and maximum of N elements. | 2 | 4 | (07) |
| (b) Let $n=4$, $(p_1, p_2, p_3, p_4)=(100, 10, 15, 27)$ and $(d_1, d_2, d_3, d_4)=(2, 1, 2, 1)$. Apply greedy method to obtain optimal solution to the above instance of job sequencing problem. | 4 | 3 | (06) |

(OR)

Apply greedy strategy to obtain an optimal merge pattern for 5 files of length 20, 30, 10, 5 and 30. Represent this merge pattern using binary merge tree.

- Q.2 (a) Describe 0-1 knapsack problem. Write pseudocode for 0-1 knapsack problem using dynamic programming.
- (b) Solve the following instance of 0-1 Knapsack problem:
- (Assume $W=10$)

i	Item	w_i	v_i
1	I_1	4	6
2	I_2	2	4
3	I_3	3	5
4	I_4	1	3
5	I_5	6	9
6	I_6	4	7

(OR)

Find a minimum cost path from s to t in the following multistage graph of Fig 1 using backward

approach.

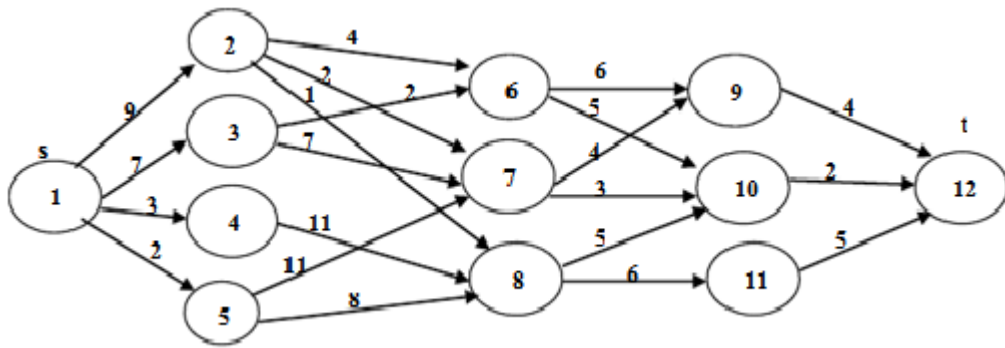


Fig 1: Multistage graph