

Max Marks: 10

Time Allowed: 10 minutes

Name: \_\_\_\_\_

ERP: \_\_\_\_\_

**Question 1:** ..... 10 marks

Solve the following instance of the discrete Knapsack Problem (without repetitions) with four items where the maximum allowed weight is  $W_{max} = 5$ .

Item ( $i$ )	Weight ( $w_i$ )	Value ( $v_i$ )
1	3	5
2	4	6
3	1	2
4	5	7

(a) [3 marks] Write the recurrence for computing the maximum value that can be picked.

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(b) [7 marks] Use the recurrence from the above part and fill in the following matrix.

	0	1	2	3	4
0					
1					
2					
3					
4					
5					