UNITED INTERNATIONAL UNIVERSITY

Department of Computer Science and Engineering (CSE)

CT-02 (extra)

30 mins

Set A

Course : DSA II Lab | **Course Code: CSE 2218**

Trimester & Year: Fall 24 | **Section: K**

Name : | **Total Marks: 30**

ID:

SN	Questions	Marks
1		10

You are a project manager with a budget of B units. You have N projects to choose from, where each project i has a cost of C[i] and an expected profit of P[i]. Your goal is to select a subset of projects such that:

1. The total cost of the selected projects does not exceed the budget B.
2. The total profit is maximized.

Input:

- The first line contains two integers — the number of projects and the available budget.
- The next **N** lines each contain two integers **C[i]** and **P[i] — the cost and expected profit of the i-th project.**

Output:

- Print a single integer — the maximum profit that can be obtained without exceeding the budget.

Sample Input	Sample Output
4 10 4 5 8 12 5 8 3 1	13

Explanation: You can choose projects 1 and 3. Their cost is 4+5=9 and the total profit is 5+8=13.

Marking Criteria

Logic	**4**
Implementation	**4**
Overall correctness	**2**

SN	Questions	Marks
2	Your task is to count the number of ways to construct sum **n** by throwing a dice one or more times. Each throw produces an outcome between 1 and 6. For example, if n=3, there are 4 ways: ● 1+1+1 ● 1+2 ● 2+1 ● 3 **Input:** ● The only input line has an integer n. **Output:** ● Print one integer: the number of ways **Constraints** The time complexity of your solution must not exceed **O(n)**. **Sample Input** | **Sample Output** 3 | 4 7 | 63 **Marking Criteria** **Logic** | **4** **Implementation** | **4** **Overall correctness** | **2**	**10**