UNITED INTERNATIONAL UNIVERSITY
Department of Computer Science and Engineering (CSE)

Course Title: Data Structure & Algorithm Lab II **Course Code: CSE2218**

Trimester & Year: Fall 2021 **Section: D** **Credit Hours: 1.0** **AZ**

CLASS EVALUATION 03

Total Time: 60 minutes **Total Marks: 20**

Q1: COST-EFFECTIVE AKIB

Akib is given N items with their price (*Pi*) and value (*Vi*). He is required to choose a subset of items such that **(size of subset + sum of values of all selected items)** ≥N and the sum of prices of all selected elements must be **minimum**. Help Akib to be cost-effective.

Input format

- The first line contains an integer *T* denoting the number of test cases.
- The first line of each test case contains an integer *N* denoting the number of *N* items.
- Each of the next *N* lines contain two space-separated integers *Vi* and *Pi*.

Output format

For each test case, print a single line denoting the ***minimum value of the sum of prices*** of selected elements.

Sample Input	Sample Output
1 3 0 2 1 5 1 1	**3**

Explanation: There are 6 possible subsets of the N=3 items in the sample input.

{0 2} = (Size of subset + sum of values of all selected items) = 1+0 = 1 which is not ≥N (3)

{1 5} = 1 + 1 = 2 which is not ≥N (3)

{1 1} = 1 + 1 = 2 which is not ≥N (3)

{0 2} {1 5} = 2 + 0 + 1 = 3 which is ≥N (3); Sum of Prices = 2 + 5 = 7

{0 2} {1 1} = 2 + 0 + 1 = 3 which is ≥N (3); Sum of Prices = 2 + 1 = 3

{1 5} {1 1} = 2 + 1 + 1 = 4 which is ≥N (3); Sum of Prices = 5 + 1 = 6

{0 2} {1 5} {1 1} = 3 + 0 + 1 + 1 = 5 which is ≥N (3); Sum of Prices = 2 + 5 + 1 = 8

Constraints: 1≤T≤100; 1≤N≤1000; 0≤Vi≤N; 1≤Pi≤109; Sum of N over all test cases will not exceed 2000