Problem: Meeting Time
(Nick Wu, 2015)

Bessie and her sister Elsie want to travel from the barn to their favorite field, such that they leave at exactly the same time from the barn, and also arrive at exactly the same time at their favorite field.

The farm is a collection of N fields numbered 1..N, where field 1 contains the barn and field N is the favorite field. The farm is built on the side of a hill, with field X being higher in elevation than field Y if X < Y. An assortment of M paths connect pairs of fields. However, since each path is rather steep, it can only be followed in a downhill direction. For example, a path connecting field 5 with field 8 could be followed in the 5 -> 8 direction but not the other way, since this would be uphill. Each pair of fields is connected by at most one path.

It might take Bessie and Elsie different amounts of time to follow a path; for example, Bessie might take 10 units of time, and Elsie 20. Moreover, Bessie and Elsie only consume time when traveling on paths between fields -- since they are in a hurry, they always travel through a field in essentially zero time, never waiting around anywhere.

Please help determine the shortest amount of time Bessie and Elsie must take in order to reach their favorite field at exactly the same moment.

Input

The first line of input will contain a single positive integer, C, the number if input cases to consider.

The first line of each test case contains N (1 <= N <= 16) and M (1 <= M <= N(N-1)/2), the number of fields and number of paths connecting fields, respectively, separated by spaces.

Output

For each input case, output a single integer, giving the minimum time required for Bessie and Elsie to travel to their favorite field and arrive at the same moment. If this is impossible, or if there is no way for Bessie or Elsie to reach the favorite field at all, output the word IMPOSSIBLE on a single line.

Sample Input	Sample Output
2 3 3 1 3 1 2 1 2 1 2 2 3 1 2 3 3 1 2 10 1 1 3 15 2 2 3 10 1	2 IMPOSSIBLE