# Base Defense

## Description

You are playing a war strategy game. In this game, there are $N$ bases connected by $M$ roads. The bases are identified with integers from 0 to $N-1$.

You'll play this game for $Q$ times, the configuration (bases and roads) are fixed through the $Q$ rounds.

For every round, there are $x$ bases you've occupied and $y$ bases you may capture. You think this war will last for a really long time, so you decided to defend your bases with as less costs as possible.

Here's what you'll act: choose some bases from the $y$ capturable bases (you may choose none of them) and occupy them. Now you own the $x$ bases you've occupied plus some bases you just captured, and you have to place an army on every road that connects a base you own and a base you didn't own.

Hiring an army is expensive, so you want to find the best strategy such that the armies required to protect the border is as few as possible.

Please find the number of armies required under the best strategy.

## Input

The first line contains an integer $T$ indicating the total number of test cases.

The first line of each test case contains two integers $N$ and $M$ indicating the number of bases and the number of roads. Following $M$ lines each contains two integers $a_i, b_i$ indicating that there's a road connecting base $a_i$ and base $b_i$. The following line contains an integer $Q$ indicating the number of rounds you will play, and the setting of each round follows.

For each round, there are four lines. The first line contains an integer $x$ indicating the number of bases you've occupied. The second line contains $x$ different integers which are the identifiers of the occupied bases. The third line contains an integer $y$ indicating the number of bases you may capture. The forth line contains $y$ different integers which are the identifiers of the capturable bases. (Note that $x$ and $y$ may be zero. In such case, the second line or the forth line will be empty.)

- $1 \leq T \leq 70$
- $1 \leq N \leq 50$
- $0 \leq M \leq \frac{N(N-1)}{2}$
- $1 \leq Q \leq 50$
- $0 \leq x, y, x + y \leq N$
- No road connects a base with itself
- No two roads connect the same pair of bases
- No base is both occupied and capturable

## Output

For each round, output one integer indicating the number of armies required under the best strategy.

## Sample Input

```
2
4 3
0 3
1 3
2 3
1
1
3
2
0 1
3 3
0 1
0 2
1 2
2
1
1
0

0

3
0 1 2
```

## Sample Output

```
1
2
0
```