8267 Ambush

In all kinds of military warfare, the strategy used is often the key in determining the outcome of the war. The ambush tactic is often used to surprise and to defeat the invading forces with fewer troops than the invading forces. Based on past battles records, it is known that if ambushing with only one third or more troops than the invading enemy's troops, enemy will be defeated. That is if the invading enemy sends 10 units of troops, the enemy can be defeated if ambushed with only 4 units of troops.

Take towns A, B, C, D, and E, as shown in Figure 1, for example. The enemy is located in town A with 10 units of troops while the capital is in town C. Suppose we deploy 2, 3, and 4 units of troops on the roads {B, C}, {C, D}, and {C, E} for ambushing, respectively, then if the enemy invades through paths A →B →C and A →D →C, each with 5 units of troops (see Figure 2), the captial will still be safe. Yet, if the enemy attacks through path A →B →C with all 10 units of troops(see Figure 3), then the capital will be captured. However, we can ensure absolute safty of the capital, regardless of the enemy's attack plan, if we deploy 4 units of troops on routes {B, C}, {C, D}, and {A, E}, respectively (see Figure 4).

Now the enemy is about to invade with the intend to capture our capital. Intelligence gave us the enemy's total troop units and their location. However, we do not know what the enemy's attacking route(s) nor troops sent on each route. To ensure safety of our capital, we need to assign troops to some of the roads to ambush the enemies if they come that way.

You have been appointed to be the commander. Given the intelligence information, please assess the minimum total troop units required to ensure absolute safety of the capital.

Technical Specification

1. The given map contains n towns, numbered from 1 to n, where $2 \leq n \leq 1000$.
2. The location of the enemy troops is at town s, $1 \leq s \leq n$; our capital is at town t, $\leq t \leq n$.
3. There is at most one road connecting any two towns.
4. The total number of roads is m, and $1 \leq m \leq 10000$.
5. The enemys troops has k units, where $1 \leq k \leq 100$.
6. There is at least one path (sequence of roads) connecting any two towns.
7. When deploying troops, only integeral troop units are allowed.
8. To simplify the process of evaluation, loss of troops on the either side is not considered.

Input

The first line of the input contains an integer indicating the number of test cases.

For each test case, the first line contains five positive integers n, m, s, t, k, representing the number of towns, number of roads, enemy troops location, location of the capital and enemy troop units.

Each of the following m lines contains two integers i, j indicating there is a road connecting town i and town j.

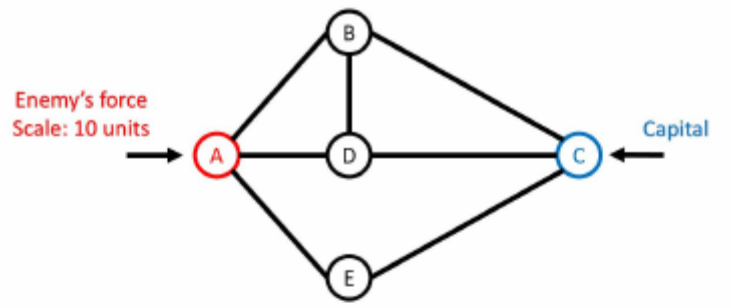

Figure 1: Map of five towns.

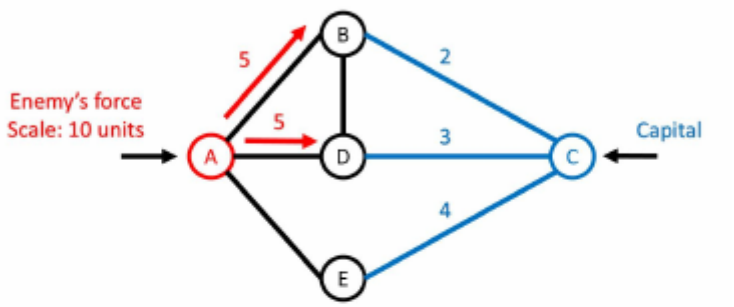

Figure 2: Successful defense. Captial is safe from the given attack.

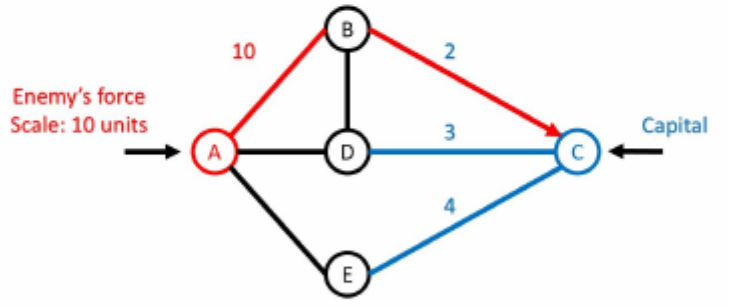

Figure 3: Failed defense. Capital will be captured.

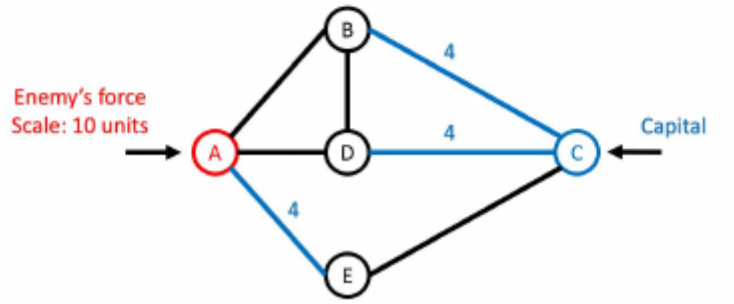

Figure 4: A deployment to ensure absolute safty of the Capital.

Output

For each test case, output the minimum total ambush troops needed to guarantee absolute safety of the capital.

Sample Input

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1
5 7 1 3 10
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1 2
2 3
1 4
4 3
1 5
5 3
2 4
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Sample Output

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12
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