Travel

Ever since Ann was young, she has dreamed of traveling to Africa. After getting a job at the magazine, her dream of traveling to Africa became a reality. She is to send travel stories to the magazine during R days moving to different cities every day among N African cities which are selected by the magazine. There is no requirement to visit all the N cities during R days, but she has to move from one city to another every day. It is therefore permissible to visit the same city at intervals. For the sake of convenience, let us call N cities as numbers between 1 and N. She must return to the city 1 on the R^{th} day starting from the city 1 on the first day of her trip.

In Africa, transportation is not convenient and the choice of transportation is limited. In other words, when moving from one city to another, the means of transportation depend on the date. More specifically, there may be several transportation means to move from city $a(1 \leq a \leq N)$ to city $b(1 \leq b \leq N)$, but only one transportation is provided per day and this method is repeated with k periodic days. For example, there are three different methods of transportation to go from city a to city b: bus, train, and airplane. Suppose that with 4 periodic days transportation methods of (bus, train, none, airplane) repeats. I.e., she can use bus at the first day, train at the second day, none at the third day (which means there is no transportation to move from city a to city b), airplane at the fourth day, bus at the fifth day, train at the sixth day, none at the seventh day, and so on. Of course, moving cost depends on which transportation she uses. There may be no transportation for moving from city a to city $c(1 \leq c \leq N)$. In such cases, if she wants to go from a to c, she has to go through other city (or cities).

The means of movement mentioned here apply in one direction. That is, the transportation means for moving city a to city b cannot be applied to the case of moving in the opposite direction. Also, the cycle of repetition of transportation between any city pair, if it exists, starts and repeats based on the first day that she starts traveling.

Ann has to move from one city to another every day as explained above, and wants to minimize the total travel cost as well.

[Input]
The number of test cases $T(\leq 100)$ is given in the first line of the input. Each test case consists of several lines explained below. In the first line of each test case, three integers $N(1 \leq N \leq 100)$, $R(10 \leq R \leq 1{,}000)$, and $M(N \leq M \leq N^2 - N)$ are given, where N denotes the number of cities, R the number of days she has to travel, M the number of city pairs in which the means of transportation exist. Each of the following M lines contains integers as shown below:

$a\ b\ k\ c_1\ c_2\ \ldots\ c_k$

Where, a and b denote city numbers, $k(1 \leq k \leq 30)$ the repetition period of the transportation means applied when moving from city a to city b, $c_i(1 \leq i \leq k,\ 0 \leq c_i \leq 1{,}000)$ the moving cost of the i^{th} transportation mean. If $c_i = 0$, it means that there is no transportation on the i^{th} day. You can assume that there is no such input that all the c_i's are 0.

The input is given as three sets as follows:

- Set 1: Either $c_i = 0$ or $c_i = 1$
- Set 2: For every city pair, $k = 1$
- Set 3: No additional constraints

[Output]
If Ann can travel while satisfying the condition, print the minimum travel cost, and if she cannot travel satisfying the condition print -1.

[I/O Example]
Input

```
3
3 4 6
1 2 3 6 2 3
1 3 2 5 0
2 1 2 8 3
2 3 4 7 0 6 0
3 1 3 0 2 10
3 2 2 5 6
2 2 2
1 2 2 5 7
2 1 2 8 0
4 9 10
1 2 3 6 2 3
1 3 3 5 0 2
1 4 2 4 6
2 1 4 1 0 8 3
2 3 4 7 0 6 0
3 1 3 0 2 10
3 2 3 5 0 6
3 4 4 2 0 3 0
4 2 4 1 1 2 3
4 3 5 2 3 4 0 1
```

Output

```
13
-1
23
```