Rajas and His Visa Issues

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	256 megabytes

Rajas, as you might know, has been selected for the World Finals 2017, which is being held in the USA. He went to the VISA office to get his visa issued, but seeing his lack of confidence, the immigration officer doubted his credentials. To verify his caliber the immigration officer decided to ask him a question. She made sure it involves different domains like Graph Theory, Maths, Number Theory, Implementation etc. The problem she gave was as follows:

Given an undirected graph with N nodes and M edges, every vertex v has a value $f(v)$ associated with it. We define a function $g(v)$ for every vertex v as follows :

$$g(v) = max_{x \in S(v)}(f(x))$$

where $S(v)$ = Set of all nodes reachable from vertex v.

Given the graph, you need to report the value

$$LCM(g(v_1), g(v_2), ...g(v_n))$$

As this number can be really large, output it's value modulo $10^9 + 7$.

Rajas, as you might guess, is very desperate to solve this problem but he is unable to perform well under pressure due to lack of confidence. He is very miser and doesn't want to spend the visa fees again. Can you help him solve this problem ?

Input

First line will contain single integer t ($1 \leq t \leq 10^5$) denoting the number of test cases.
The following lines describe each test case in the following format
First line contains two integers N ($1 \leq N \leq 10^5$) ans M ($1 \leq M \leq 2 * 10^5$) denoting number of nodes and no of edges in the graph.
The next line contains N space separated integers, where the $i'th$ integer denotes the value of $f(i)$ ($1 \leq f(i) \leq 10^6$).
The following M lines contains the edges of the graph. Each line contains two integers u and v ($1 \leq u, v \leq N$) denoting that there exists and undirected edge between vertex u and v.

Output

For every test case, output a single integer, the value of the LCM modulo $10^9 + 7$

Example

standard input	standard output
3 6 2 8 18 6 15 4 18 2 6 1 6 5 3 8 3 12 9 12 1 5 2 4 4 5 4 3 1 19 16 6 2 4 3 4 2 3	180 12 19

Note

Sum of N over all test files $\leq 10^6$. Sum of M over all test files $\leq 10^6$