**Test 1**

**Time: 60 Minutes**

1. S students, I interviewers, each student has to undergo R interviews, each interviewer can interview at max X students. No student interviews with an interviewer more than once, and no interviewer interviews a student more than once. Find all the possible (variation : number of all the possible) student­interviewer assignments.

2. An ad is a string and so is a query. You have millions and millions of ads stored, a query matches an ad if the set of words in the ad is a subset of the set of words in the query. (variation : the set of words in the query is a subset of the set of words in the ad). Design a system to handle such queries. Query traffic is also quite high. Make the system as efficient as possible.

3. How do you write a program to mess up a system that uses a LRU cache? Now how do you modify the LRU policy to catch this problem? He was looking for some specific answer and wasn’t accepting mine, so I didn’t get to the modifying part of the question.

4. You are given M distinct integers in the range 1 through N. You have to sort them and write the result to a file. Both M and N are very large; assume M/10 integers fit in the Memory. (I gave some solution based on using files and sorting them individually. She didn’t want that. The she gave a hint: Use the fact that the integers are distinct. And don’t focus on the 1/10th size part; it is just some arbitrary figure I mentioned.)

5. Find the cube root of a floating point number using just add, sub, mul, div operators.

6. You are given the map of airplanes between the cities in a country, basically a directed graph was given with weights as the cost of planes between the cities. You were also given a single coupon to get 70% on any single flight. Find the minimum cost with which you can travel between two cities.