Q5

You have to produce and deliver N chemicals. You need to deliver Wi kilograms of chemical Ci . Production of each chemical takes one day, and your factory can produce only one chemical at any time. However, all of the chemicals evaporate, and at the end of each day you loose p percent of the amount you had at the end of the previous day, so you need to produce more than what you need to deliver. Schedule the production of the chemicals so that the total extra weight of all chemicals needed to produce to compensate for the evaporation loss is as small as possible.

Hint: First determine how much of a chemical is left after k many days and then compute how much of it has ben lost, and then apply greedy. More substance is produced early - more will evaporate.

As the hint states we need to first determine how much of a chemical is left after *k* many days to compute how much of it has been lost. But since the rate of evaporation is the same for all the chemical that means that only the weight matters when scheduling.

And thus to ensure the evaporation loss is as small as possible we just need to produce the chemicals with the smallest weight first and the biggest weight last.

This is because if we produce the chemical with the least weight on the first day then the evaporation loss after k days will be least among all the chemicals.

Applying this greedy method will ensure evaporation loss is as small as possible therefore is optimal.