

Q1)

Let's assume that grater numbered material is the most effective.

M1	M2	M3	M4	M5
M6	M7	M8	M9	M10
M11	M12	M13	M14	M15
M16	M17	M18	M19	M20
M21	M22	M23	M24	M25

5 experiments of 25 materials by using 5 materials per experiment. Select best 3 from each row.

M3	M8	M13	M18	M23
M4	M9	M14	M19	M24
M5	M10	M15	M20	M25

1 experiment for deciding which rows are the best ones, sorting, in the first 5 experiments.

Now M25 is faster than M20 and M20 is faster than M15. So we can get rid of the materials M3, M4, M5, M8, M9 and M10.

Also, M25 is faster than M20 and M20 is faster than M15. Thus, we can get rid of materials M13 and M14.

M25 is faster than M20. M20 is faster than M19. Thus, we can get rid of M18.

M15	M19	M20	M23	M24
				M25

M25 is the fastest. Thus, we make 1 last experiment for deciding 2nd and 3rd.

**The best 3 materials are found in 7 steps.**