1. One key thing to note is that for finer discretization the number of parameters in the Q Table are more than for coarse discretization. Since parameters are more, it takes a higher number of episodes to explore the state space. Hence, for only 1k episodes, the coarser discretization would have already explored the small state space leading to better rewards.

2. As intuition says, we expect the finer discretization to give better results. Since, we run it for 10k episodes, both the Q Tables would have enough time to explore their respective state space and hence, the finer discretization, being a better representation of reality will perform better.

3. Out of all the variables in the observation space, there would be a few variables which have edge cases i.e it will fail no matter what action is taken if it crosses a certain threshold. Since we discretize it, the threshold will lie within a interval and hence, will always fail within that interval whereas it will fail less often if it is continuous. So, discretization is not a good method in such cases.

4. Yes, more the number of parameters in the Q-Table better the representation of the environment. The only problem would be the no. of training episodes or epochs will increase since it has to explore a very large state space. Also, it will now be critical to choose a proper ε or else it may converge to a sub-optimal solution.