Q1. Discuss several of the problems that arise in managing the development of large scale software systems.

Ans:

The testing phase, which takes place at the end of the development cycle, is the first time that timing, storage, input/output transfers, and other aspects of the system are experienced rather than evaluated. These phenomena are difficult to analyse precisely. They aren't, for example, solutions to mathematical physics' standard partial differential equations. However, if these phenomena fail to meet the numerous external limitations, a major redesign is generally required. These problems will not be solved by a simple octal patch or a redo of some isolated code. The required design changes are likely to be so disruptive that they will contradict the software requirements that underpin the design and provide the basis for everything. Either the requirements must be changed or the design must be drastically altered.

Of fact, it is impossible to create software without the stages given by the author, but they are typically handled with relative ease and have minimal impact on requirements, design, or testing.

Q2. Why does Royce advocate for a preliminary program design prior to analysis? In addition, discuss two of the other five recommendations outlined by Royce.

Ans: Between the software requirements generation phase and the analysis phase, a preliminary program design step has been added. This technique can be criticized since the program creator is forced to design in a vacuum of initial software requirements with no prior study. As a result, his early design may be significantly off from his final design if he waits until the analysis is complete. Although this critique is valid, it misses the purpose. The program designer uses this technique to ensure that the software will not fail due to storage, timing, or data flux issues.

* Involve the customer

Even after prior agreement, what a software design will perform is subject to wide interpretation for some reason. It is critical to formally involve the consumer so that they have committed themselves at earlier stages prior to ultimate delivery. Giving the contractor complete control between requirement definition and operation is a recipe for disaster.

* Do it twice

The product's complete originality is the second most critical condition for success. If the computer program is being written for the first time, make sure the version given to the customer for operational deployment is genuinely the second version in terms of crucial design/operations areas. For analysis, coding, and program design, they must have an intuitive feel.

Q3. How do these recommendations correspond to driving quality throughout the SDLC (use your interpretation based upon the reading).

Ans:

* Involve the customer

From the fig. 9, one understands that during these phases there is a input taken from the customer side as to involve them into development process. For example, during software requirements phase requirements are arranged according to what customers want, there is a preliminary software review during preliminary program design phase, adding over there is critical software review during program design phase which gives inputs to coding phase and so on. Hence, driving quality throughout the SDLC is improved and also the developers understands the tasks in a better way ..

* Do it twice

After this step, Judgment issues can now be thoroughly investigated. The project manager is at the mercy of human judgment without this simulation. With the simulation, he may at least test certain essential hypotheses and narrow down what remains for human judgment, which is invariably and significantly optimistic in the area of computer program design. Hence also providing quality throughout SDLC.