1 Questions for Test

Question 1: What types of errors are you likely to miss even with 100% level coverage? Provide two examples and explain

Answer:

- Performance Defecs: Even if you have 100% statment level coverage, performance is something that you will likely to miss because the program is required to be tested with a very large input in order to see what performance it has.
- Requirement bugs: bugs are come from missunderstanding the requirement from the program can't be detected even with 100% coverage, these bugs can only be worked out with discussion among the team, project manager, and the customer in general.

Question 2: What kind of error are surfaced by regression testing.
Answer: Usually human errors in revision. Usually when a programmer revive a program, chances are some of the old errors will re-occur. Regression will prevent these error effectively.

Question 3: Error, failure, faults, hazard. Describe the four concepts when communicating about a defects. Describe the four concepts and give example illustrating the differences.
Answer:
Error: dynamic problem at runtime. Eg: Index out of bounds in arrays.
Failure: is the problem of the system or the machine. Eg: Therac 25 believes it has valid data when it doesn't and shoot overdose stream of radiation.
Fault: static problem in code. Eg: increment a field instead of setting it to a particular value
Hazard: The resulting risk that actually happens. Eg: patient dies because of therac 25 radiation overdose

Question 4: How does unit testing improve reliability? Use terminology above when answering this question
Answer: Unit testing prevent faults which leads to error from happening(testing at different level like method, single class, entire system). And since faults is the lowest in the progression of defects, unit testing strongly improve reliability.
Progression of defects:

- Fault
- Error
- Failure
- Hazard

Question 5: 4 stages of team dynamics, briefly describe the characteristic of each
Answer:

- **Forming:** People try to get to know each other, low conflict, low production
- **Storming:** People working our roles, and find out weakness and strength. Low production, high conflict
- **Norming:** group learns how to deal with conflict, become more productive with defined roles. medium conflict, medium production.
- **Performing:** Team member understands each other, team's culture is formed. Conflicts are dealt in a way that does not cause personal upset. High production, medium conflicts

Question 6: Compare Inspection to Analysis
1. Give an example of a defect found more easily with static analysis than inspection, and explain why it is better found with static analysis
Answer: Security errors such as buffer overflows are difficult to find during inspection because it's hard to look or trace code by hand and easier to detect via static analysis tools(design to analyize control and data flow)
2.Give an example of a defect found more eaisly with inspection that static analysis, explain why it is better found with inspection
Answer: Issues of scalability are much easier to identify and discuss as a team during inspection as opposed to static testing. For instance, more efficient algorithms (complexity analysis) may be suggested during inspections whereas a static analysis is not designed to look for such things.