

41 Lecture - CS504

Important Subjective

1. What is the main purpose of software inspections, and how do they differ from testing?

Answer: Software inspections aim to detect defects early by manually reviewing code or documents. They are static techniques. In contrast, testing involves executing the software to validate its functionality and is a dynamic technique.

2. How do inspections and testing complement each other in ensuring software quality?

Answer: Inspections focus on prevention by finding defects early, while testing focuses on detection by validating functionality. Both techniques work together to deliver high-quality software, identifying issues before and after code execution.

3. When is it most appropriate to perform software inspections, and what benefits do they offer?

Answer: Software inspections are best conducted during early development stages. They offer benefits like early defect detection, reduced development costs, improved code quality, and knowledge sharing among team members.

4. What are the main types of testing, and how do they differ from inspections in terms of execution?

Answer: The main testing types include unit testing, integration testing, and system testing. Testing is executed dynamically, while inspections are performed statically by manual code or document reviews.

5. Describe the roles of different stakeholders in software inspections and testing.

Answer: In inspections, developers participate as authors of the code being reviewed, while peers and team leads act as inspectors. In testing, developers write test cases, testers execute them, and users provide feedback.

6. How do inspections and testing contribute to improving software maintainability?

Answer: Inspections catch defects early, making code easier to maintain. Testing ensures that changes or refactoring do not introduce new defects, supporting long-term maintainability.

7. What are the key challenges faced during inspections and testing, and how can they be addressed?

Answer: Challenges include resource allocation, time constraints, and test environment setup. Address them by allocating sufficient resources, planning inspections early, and automating testing processes.

8. How do inspections and testing contribute to reducing software defects in the production environment?

Answer: Inspections catch defects early, preventing them from reaching production. Testing validates the software before deployment, reducing the likelihood of defects in the production environment.

9. Can inspections and testing be used in conjunction with agile development methodologies?

Answer: Yes, both inspections and testing can be integrated into agile practices. Inspections can be conducted during sprint reviews, and automated testing can be part of continuous integration in agile development.

10. Explain the difference between formal inspections and informal reviews in terms of rigor and documentation.

Answer: Formal inspections follow strict processes and documentation standards, often involving a formal inspection team. Informal reviews are less structured and may involve ad hoc discussions and informal peer reviews.