



Answers:

Great! Here's the **answer key with explanations** for the 50 MCQs:

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**Answers with Explanations**

**1. Design**

*Design phase includes detailed specifications.*

**2. Non-functional requirements**

*They define system attributes like performance or security.*

**3. Waterfall model**

*In Waterfall, each phase is sequentially completed.*

**4. Software Requirements Specification (SRS)**

*SRS defines what the software will do.*

**5. Sequence diagram / Activity diagram**

*Both represent dynamic behavior; typically, Activity Diagram is expected.*

**6. To verify module interactions**

*Integration testing ensures components work together.*

**7. Refactoring**

*It's a practice, not an SDLC phase.*

**8. Waterfall**

*Best when all requirements are known beforehand.*

**9. Software Requirements Specification**

*SRS is the full form.*

**10. System Testing**

*Verifies the system as a whole.*

**11. White-box Testing**

*White-box looks at internal code logic.*

**12. Software Testing Life Cycle**

*STLC = Software Testing Life Cycle.*

**13. Unit Testing**

*Tests individual components.*

**14. Selenium**

*Most commonly used for web UI testing.*

**15. Gray-box Testing**

*Tester has partial knowledge of internal code.*

**16. Planning → Design → Execution → Defect Reporting → Closure**

*This is the typical lifecycle sequence.*

**17. Product Owner**

*Responsible for the Product Backlog.*

**18. 2 to 4 weeks**

*A sprint typically lasts 2–4 weeks.*

**19. Waterfall**

*Not an Agile framework.*

**20. To synchronize team and plan daily work**

*Daily stand-up is for quick updates.*

**21. Individuals & Interactions, Working Software, Customer Collaboration, Responding to Change**

*These are the 4 pillars of Agile.*

**22. Sprint Backlog**

*It's the output of Sprint Planning.*

**23. Demonstration of the product increment**

*Sprint Review showcases completed work.*

**24. Comprehensive documentation**

*Agile values working software more.*

**25. Burn-down Chart**

*Tracks remaining work visually.*

**26. Scrum Master**

- Removes obstacles and facilitates meetings.*
- 27. Practice of frequently integrating code into shared repo**  
*That's what CI is.*
- 28. Automated release to production**  
*CD ensures frequent, automated deployments.*
- 29. GitHub Actions**  
*Integrated with GitHub.*
- 30. Code is compiled and unit-tested**  
*That's what the Build stage does.*
- 31. Faster feedback and reduced integration issues**  
*CI/CD provides faster, safer releases.*
- 32. Deployment**  
*After testing, comes deployment.*
- 33. JaCoCo**  
*Used in Java for code coverage.*
- 34. To catch formatting/style/code issues**  
*Linting checks code quality.*
- 35. Code quality, vulnerabilities, and smells**  
*SonarQube provides detailed static analysis.*
- 36. Linting**  
*Linting is static analysis.*
- 37. How much of the code is tested by tests**  
*Measured in % of lines/functions tested.*
- 38. Testing smallest testable parts of software**  
*That's unit testing.*
- 39. Eclipse**  
*It's an IDE, not a CI/CD tool.*
- 40. User Manual**  
*Provides instructions for end users.*
- 41. Risk analysis**  
*Spiral model focuses heavily on risk.*
- 42. A testing phase**  
*Each development phase maps to a test phase.*
- 43. To validate that a feature works as expected**  
*They ensure each function meets its requirement.*
- 44. Non-functional Testing**  
*Includes performance, load testing.*
- 45. Scrum Team**  
*Owns and maintains Sprint Backlog.*
- 46. To reflect and improve team processes**  
*Sprint Retrospective looks for improvement.*
- 47. At the end of each Sprint**  
*A working increment is delivered each sprint.*
- 48. Regression Testing**  
*Ensures new changes don't break existing code.*
- 49. Frequent delivery and customer feedback**  
*XP promotes frequent releases and collaboration.*
- 50. User Manual / Maintenance Docs**  
*Created after system testing is done.*

Here are **50 new mixed MCQs** covering the following areas:

- **SDLC & SDLC Models**
  - **Software Testing Methodologies**
  - **Agile Methodology & Scrum**
  - **CI/CD**
  - **Code Quality & Tools**
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**?** MCQs (Answers and explanations will follow after all 50 questions)

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**1.** What is the main purpose of the Design phase in SDLC?

- A) Writing code
- B) Gathering requirements
- C) Creating system architecture
- D) Testing the system

**2.** In which SDLC model do you **not go back to previous phases**?

- A) Spiral
- B) V-Model
- C) Agile
- D) Waterfall

**3.** Which document specifies functional and non-functional requirements?

- A) Test Plan
- B) SRS
- C) User Manual
- D) UML Diagram

**4.** Which of the following is a **functional requirement**?

- A) System should load within 5 seconds
- B) System must encrypt passwords
- C) System must allow user login
- D) Application must support 10,000 users

**5.** Which SDLC model is best suited for **risk analysis and prototyping**?

- A) Waterfall
- B) V-Model
- C) Spiral
- D) Agile

**6.** Which tool is used for **Static Code Analysis**?

- A) Selenium
- B) JUnit
- C) SonarQube
- D) Jenkins

**7.** What is the correct order of phases in STLC?

- A) Design → Planning → Execution → Closure
- B) Planning → Design → Execution → Closure
- C) Execution → Planning → Closure → Design
- D) Closure → Execution → Planning → Design

**8.** Which testing ensures the system meets business needs?

- A) Unit Testing
- B) Integration Testing
- C) System Testing
- D) Acceptance Testing

**9.** What is the role of the **Scrum Master**?

- A) Owns product backlog
- B) Writes user stories
- C) Facilitates meetings and removes blockers
- D) Creates UI design

**10.** Which one is **not** a Scrum Artifact?

- A) Product Backlog

B) Sprint Backlog

C) Test Report

D) Burndown Chart

**11.** What type of testing is performed by end-users?

A) Integration Testing

B) System Testing

C) Unit Testing

D) Acceptance Testing

**12.** What does CI in CI/CD stand for?

A) Central Integration

B) Continuous Integration

C) Continuous Improvement

D) Code Integration

**13.** Jenkins is used in which part of the CI/CD pipeline?

A) Requirement gathering

B) Manual testing

C) Automation of build and test

D) Project documentation

**14.** In Agile, what is a **Burndown Chart** used for?

A) To show the product architecture

B) To track the progress of a sprint

C) To record errors

D) To list test cases

**15.** Which of the following is a **white-box testing technique**?

A) Boundary Value Analysis

B) Equivalence Partitioning

C) Statement Coverage

D) Exploratory Testing

**16.** Which agile framework is designed for **large-scale teams**?

A) Scrum

B) Kanban

C) XP

D) SAFe

**17.** What does **Postman** primarily test?

A) UI Testing

B) REST APIs

C) Load Testing

D) Code Quality

**18.** What does a **Test Suite** contain?

A) A set of tools

B) A single test

C) A group of related test cases

D) Code snippets

**19.** Which Agile principle focuses on sustainable pace?

A) Business people and developers must work together

B) Simplicity is essential

C) Agile processes promote sustainable development

D) Deliver working software frequently

**20.** Which SDLC model is most **iterative and flexible**?

A) V-Model

B) Agile

C) Waterfall

D) Spiral

**21.** Which tool helps with **code linting** in JavaScript?

A) SonarQube

B) ESLint

- C) Postman
- D) GitHub

**22.** Which document describes how the system should be tested?

- A) Design Document
- B) SRS
- C) Test Plan
- D) Product Backlog

**23.** What is the purpose of **unit testing**?

- A) Test integration between modules
- B) Test end-user functionality
- C) Test individual code components
- D) Verify requirement documents

**24.** Which phase comes **first** in Agile sprint cycle?

- A) Sprint Retrospective
- B) Sprint Review
- C) Sprint Planning
- D) Daily Stand-up

**25.** Which is an advantage of CI/CD pipeline?

- A) Manual deployment
- B) Delayed feedback
- C) Frequent and reliable delivery
- D) Waterfall workflow

**26.** What type of testing is **performance testing**?

- A) Functional Testing
- B) Unit Testing
- C) Non-Functional Testing
- D) System Testing

**27.** Which SDLC phase includes writing source code?

- A) Testing
- B) Requirement
- C) Deployment
- D) Development

**28.** Which is **not a goal** of Agile?

- A) Customer satisfaction
- B) Responding to change
- C) Extensive documentation
- D) Frequent delivery

**29.** What is a **non-functional requirement**?

- A) Ability to search products
- B) Login feature
- C) Page load time under 3 seconds
- D) Ability to reset password

**30.** What does **Selenium** test?

- A) API
- B) UI
- C) Code quality
- D) SQL queries

**31.** What's the first step in CI/CD pipeline?

- A) Monitor
- B) Test
- C) Code Commit
- D) Deploy

**32.** What does the term “Definition of Done” mean in Scrum?

- A) Project completion
- B) End of sprint
- C) Agreed conditions for work completion

D) Bug fixing

**33.** What is the duration of a typical sprint?

A) 1-2 months

B) 6 months

C) 1-4 weeks

D) No fixed duration

**34.** What does a **Spiral model** emphasize?

A) Sequential development

B) No feedback loops

C) Risk analysis and iterative refinement

D) Strict documentation

**35.** What is the output of requirement gathering phase?

A) Test Plan

B) Design Document

C) SRS

D) Source Code

**36.** Which technique is used in Black-box Testing?

A) Loop Testing

B) Path Testing

C) Decision Table

D) Code Review

**37.** What is the main purpose of a Test Case?

A) Write requirements

B) Execute deployment

C) Validate a specific function

D) Design UI

**38.** What is an advantage of V-Model?

A) Fast coding

B) No need for documentation

C) Early test planning

D) Flexible iteration

**39.** A Test Plan contains all EXCEPT:

A) Test objectives

B) Test data

C) Test cases

D) User Manual

**40.** In which Agile event does team reflect and improve?

A) Daily Stand-up

B) Sprint Review

C) Sprint Planning

D) Sprint Retrospective

**41.** What does XP in Agile stand for?

A) Extra Planning

B) Extended Performance

C) Extreme Programming

D) Execution Plan

**42.** What does LoadRunner test?

A) Code quality

B) Security

C) Performance/load

D) UI/UX

**43.** In which model testing is done in parallel with development?

A) Waterfall

B) V-Model

C) Spiral

D) RAD

**44.** What is NOT true about Acceptance Testing?

- A) It is done by end-users
- B) It checks business requirements
- C) It is done before deployment
- D) It tests low-level modules

**45.** Which component is **not part of Scrum team**?

- A) Product Owner
- B) Scrum Master
- C) QA Tester
- D) Development Team

**46.** Which phase of SDLC involves bug fixing?

- A) Testing
- B) Maintenance
- C) Design
- D) Requirement Gathering

**47.** What is used to **monitor CI/CD deployments**?

- A) SonarQube
- B) Jenkins
- C) Grafana
- D) Selenium

**48.** A **story point** in Agile is used to:

- A) Count bugs
- B) Estimate complexity
- C) Plan user manual
- D) Identify errors

**49.** Which one is an Agile value?

- A) Following the plan over flexibility
- B) Processes over individuals
- C) Comprehensive documentation
- D) Customer collaboration over contract negotiation

**50.** What is the goal of Code Coverage?

- A) Ensure all functions are used
- B) Track user activity
- C) Measure how much code is tested
- D) Count the number of bugs

## Answers and Explanations

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### **1. A. Requirement Gathering**

→ It's the first step in SDLC to understand what the client needs.

### **2. B. Requirement Analysis**

→ Functional and non-functional requirements are gathered during this phase.

### **3. C. Use Case Diagram**

→ Use case diagrams are part of UML and represent functional behavior.

### **4. B. Design**

→ SRS is converted into system architecture/design in this phase.

### **5. C. Testing**

→ Verification of the developed product happens during the testing phase.

### **6. A. Waterfall Model**

→ Waterfall follows a strict phase-wise approach, not suitable for changes later.

### **7. C. Spiral Model**

→ Best suited for large, high-risk projects as it involves continuous risk analysis.

### **8. A. SRS**

→ SRS stands for Software Requirements Specification.

**9. D. Iterative**

→ In the Iterative model, requirements can evolve with each cycle.

**10. B. V-Model**

→ In V-Model, every development phase has a corresponding testing phase.

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**11. A. Agile**

→ Agile is best for fast-changing, adaptive projects.

**12. C. Spiral Model**

→ Risk analysis is a core activity in each spiral of development.

**13. D. Agile**

→ Agile promotes working software over documentation.

**14. A. Requirements are gathered continuously**

→ Agile allows changes in requirements at any stage.

**15. C. Incremental**

→ In incremental model, parts of the software are developed and released in increments.

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**16. B. Functional**

→ Functional testing checks the business logic (like login, calculations, etc.).

**17. C. White-box**

→ White-box testing involves internal code structure knowledge.

**18. B. Unit Testing**

→ Unit testing verifies individual components/modules.

**19. D. Acceptance Testing**

→ Acceptance testing ensures the system meets user needs.

**20. A. Selenium**

→ Selenium is used for automating web application testing.

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**21. A. LoadRunner**

→ LoadRunner is used for performance/load testing.

**22. C. STLC**

→ STLC stands for Software Testing Life Cycle.

**23. B. Test Plan**

→ A test plan defines the scope, approach, and resources of testing.

**24. D. Test Case**

→ A test case includes test data, expected and actual outcomes.

**25. C. Integration Testing**

→ Tests combined modules to verify interaction between them.

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**26. A. Grey-box**

→ Grey-box testing is a mix of white-box and black-box testing.

**27. B. Execution**

→ In STLC, execution involves running the test cases.

**28. D. Defect Reporting**

→ When actual and expected results don't match, a defect is reported.

**29. C. Closure**

→ Final phase in test lifecycle – test report is prepared and test artifacts closed.

**30. B. Test Scenario**

→ A test scenario is a high-level idea of what to test.

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**31. D. 4 Pillars**

→ Agile is based on 4 values/pillars like working software, customer collaboration, etc.

**32. A. 12**

→ Agile has 12 principles under its manifesto.

### **33. B. Scrum Master**

→ Facilitates Agile process and resolves team obstacles.

### **34. C. Sprint**

→ A time-boxed iteration of 1–4 weeks in Agile Scrum.

### **35. D. Product Backlog**

→ Contains all the features, enhancements, and bug fixes of the product.

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### **36. A. Sprint Review**

→ This event reviews what was completed during the Sprint.

### **37. C. Kanban**

→ Kanban is a pull-based Agile framework that focuses on visualizing work.

### **38. B. XP (Extreme Programming)**

→ XP emphasizes frequent releases and constant feedback.

### **39. D. SAFe**

→ Scaled Agile Framework for managing large projects with multiple Agile teams.

### **40. A. Sprint Retrospective**

→ Meeting to reflect and improve after each sprint.

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### **41. C. Burndown Chart**

→ A chart that shows remaining work in a Sprint.

### **42. B. GitHub Actions**

→ GitHub Actions is used to automate workflows including CI/CD.

### **43. A. Jenkins**

→ Jenkins is a popular CI/CD automation server.

### **44. C. Azure DevOps**

→ Azure DevOps provides CI/CD pipelines and tools by Microsoft.

### **45. D. GitLab CI/CD**

→ GitLab offers integrated CI/CD pipelines within GitLab.

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### **46. A. Code Commit → Build → Test → Deploy**

→ It's the standard order in a CI/CD pipeline.

### **47. B. Continuous Integration**

→ Developers integrate code frequently; helps detect errors early.

### **48. C. Continuous Deployment**

→ Every successful build is automatically deployed without manual approval.

### **49. D. Unit Testing**

→ Focuses on testing small pieces of code (functions/modules).

### **50. A. SonarQube**

→ Tool for static code analysis – identifies bugs, code smells, vulnerabilities.

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