

Software Engineering Fundamentals

Software Engineering · Answer Key · 18 Questions

1. Which phase of the Software Development Life Cycle (SDLC) primarily involves gathering and documenting what the software is expected to do?

- A) Deployment
- B) Requirement Analysis**
- C) Testing
- D) Maintenance

2. What is the primary purpose of version control systems like Git?

- A) To translate code into machine language
- B) To track changes in source code over time**
- C) To automate the deployment of hardware
- D) To design user interface graphics

3. In object-oriented programming, what is the term for hiding the internal state of an object and requiring all interaction to be performed through methods?

- A) Inheritance
- B) Polymorphism
- C) Encapsulation**
- D) Abstraction

4. Which software testing method involves verifying the internal structure and logic of the code without executing the program?

- A) Black-box testing
- B) Static analysis**
- C) Beta testing
- D) Performance testing

5. What does the acronym API stand for in software engineering?

- A) Application Programming Interface**
- B) Automated Processing Integration
- C) Advanced Protocol Instruction
- D) Application Private Index

6. Which Agile methodology framework is characterized by fixed-length iterations called 'sprints'?

- A) Waterfall
- B) Scrum**
- C) Spiral
- D) Lean

7. What is the primary function of a compiler?

- A) To manage memory allocation
- B) To execute code line-by-line
- C) To translate high-level source code into machine code**
- D) To debug logical errors

8. In software engineering, what does 'technical debt' refer to?

- A) The cost of purchasing software licenses
- B) The implied cost of additional rework caused by choosing an easy solution now instead of a better approach**
- C) The financial budget allocated to hardware maintenance
- D) The interest paid on software patents

9. Which type of software maintenance involves modifying a program to correct newly discovered errors?

- A) Corrective maintenance**
- B) Adaptive maintenance
- C) Perfective maintenance
- D) Preventive maintenance

10. What is the purpose of a 'unit test' in software development?

- A) To test the entire system integration
- B) To test the smallest testable parts of an application in isolation**
- C) To test the user interface responsiveness
- D) To test the performance under high traffic

11. Which development model is characterized by a sequential, linear approach where each phase must be completed before the next begins?

- A) Agile
- B) Spiral
- C) Waterfall**
- D) Rapid Application Development

12. What is a 'syntax error' in programming?

- A) An error that occurs during program execution
- B) An error caused by a violation of the programming language's rules**
- C) An error where the program runs but produces incorrect results
- D) An error caused by insufficient hardware resources

13. What is 'refactoring' in the context of software engineering?

- A) Adding new features to an existing system
- B) Deleting old software to free up space
- C) Restructuring existing computer code without changing its external behavior**
- D) Rewriting the entire application in a different language

14. Which document describes the technical specifications, features, and constraints of a software product?

- A) Software Requirements Specification (SRS)**
- B) User Manual
- C) Marketing Brochure
- D) Budget Report

15. What does the term 'IDE' stand for?

- A) Integrated Development Environment**
- B) Internal Data Engine
- C) Internet Design Element
- D) Intelligent Digital Editor

16. What is 'integration testing'?

- A) Testing individual functions in isolation
- B) Testing the combined parts of an application to ensure they work together**
- C) Testing the software with end-users in a real environment
- D) Checking the software for memory leaks

17. In software engineering, what is the 'client' side of a web application?

- A) The server-side database
- B) The code that runs in the user's web browser**
- C) The operating system of the server
- D) The network infrastructure

18. What is a 'repository' in the context of software configuration management?

- A) A file storage location for compiled programs
- B) A central location where data is stored and managed, usually including version history**
- C) A hardware device for storing backups
- D) A list of software developers assigned to a project