1. What is the primary goal of software maintenance?

A) To evaluate the software for performance improvements
B) To ensure the software continues to meet the user's evolving needs
C) To update the software's user interface
D) To rewrite the codebase from scratch
✅ **Answer:** B) To ensure the software continues to meet the user's evolving needs

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2. Which of the following is NOT a reason for software maintenance?

A) Adding new features
B) Fixing defects
C) Rewriting the entire software
D) Adapting to changes in the environment
✅ **Answer:** C) Rewriting the entire software

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3. Which of the following is an example of adaptive maintenance?

A) Fixing a bug in the software
B) Upgrading software to run on a new operating system
C) Adding a new feature to the software
D) Improving the software's speed and performance
✅ **Answer:** B) Upgrading software to run on a new operating system

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4. What does corrective maintenance aim to do?

A) Add new features
B) Fix defects or bugs in the software
C) Adapt software to new environments
D) Improve the software's usability
✅ **Answer:** B) Fix defects or bugs in the software

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5. What type of software maintenance involves modifying the software to make it more efficient?

A) Adaptive maintenance
B) Corrective maintenance
C) Perfective maintenance
D) Preventive maintenance
✅ **Answer:** C) Perfective maintenance

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6. Which of the following is a key principle when designing software for maintainability?

A) Minimizing the number of features
B) Writing as much code as possible
C) Ensuring code is modular and easy to understand
D) Complicating the code structure to prevent future changes
✅ **Answer:** C) Ensuring code is modular and easy to understand

---

7. Which of the following is a technique commonly used for software maintenance?

A) Reverse engineering
B) High-level design
C) Requirements gathering
D) Data modeling
✅ **Answer:** A) Reverse engineering

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8. What is reverse engineering used for in software maintenance?

A) To write new software from scratch
B) To understand and recreate the software's functionality based on its existing structure
C) To optimize the software's performance
D) To test the software under different conditions
✅ **Answer:** B) To understand and recreate the software's functionality based on its existing structure

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9. Which type of maintenance is used to make software work in a new environment?

A) Corrective maintenance
B) Adaptive maintenance
C) Perfective maintenance
D) Preventive maintenance
✅ **Answer:** B) Adaptive maintenance

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10. What is software re-engineering primarily concerned with?

A) Rewriting the software code entirely
B) Modifying the software to improve its structure without changing its functionality
C) Adding new features to the software
D) Removing outdated features from the software
✅ **Answer:** B) Modifying the software to improve its structure without changing its functionality

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11. What is the primary aim of preventive maintenance?

A) To fix defects
B) To ensure that no future defects will occur
C) To improve the software's performance
D) To adapt the software to a new environment
✅ **Answer:** B) To ensure that no future defects will occur

---

12. Which of the following is a key challenge in software maintenance?

A) Writing code from scratch
B) Balancing bug fixes with new feature development
C) Designing new architectures
D) Reducing the software’s cost
✅ **Answer:** B) Balancing bug fixes with new feature development

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13. What is maintenance as part of software evaluation focused on?

A) Conducting market research for new features
B) Determining the system’s health and making necessary changes
C) Identifying new opportunities for software development

D) Testing the software under stress
✅ **Answer:** B) Determining the system's health and making necessary changes

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14. In software maintenance, what is the process of making software more maintainable known as?

A) Refactoring
B) Version control
C) Reverse engineering
D) Debugging
✅ **Answer:** A) Refactoring

---

15. What is a key advantage of designing software for maintainability?

A) Reduces the initial development time
B) Makes it easier to add new features, fix bugs, and adapt to changes in the environment
C) Increases the cost of the project
D) Eliminates the need for testing
✅ **Answer:** B) Makes it easier to add new features, fix bugs, and adapt to changes in the environment

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16. Which of the following is a common tool used in software maintenance?

A) Compilers
B) Code editors
C) Debuggers
D) UML diagrams
✅ **Answer:** C) Debuggers

---

17. What does software reverse engineering typically involve?

A) Writing code from scratch
B) Deconstructing the software to understand its inner workings
C) Creating software without a specification

D) Analyzing the hardware that runs the software
✅ **Answer:** B) Deconstructing the software to understand its inner workings

---

18. Which of the following is a key disadvantage of reverse engineering?

A) It is difficult to analyze the code
B) It often requires breaking down existing software into simpler forms
C) It is time-consuming and costly
D) It can violate intellectual property laws
✅ **Answer:** D) It can violate intellectual property laws

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19. Which type of maintenance involves changes to improve software performance or add features without changing the system's functionality?

A) Corrective maintenance
B) Adaptive maintenance
C) Perfective maintenance
D) Preventive maintenance
✅ **Answer:** C) Perfective maintenance

---

20. What is the main purpose of software re-engineering?

A) To re-create software in a new programming language
B) To improve the software's architecture and design while maintaining its functionality
C) To develop entirely new features for the software
D) To debug the software and remove errors
✅ **Answer:** B) To improve the software's architecture and design while maintaining its functionality

---

21. What is an example of corrective maintenance?

A) Changing the software to run on a new operating system
B) Fixing a bug reported by users
C) Adding a new feature to the software

D) Updating the software to support new hardware
✅ **Answer:** B) Fixing a bug reported by users

---

22. Which maintenance type deals with modifying the software to meet changes in the hardware or operating environment?

A) Corrective maintenance
B) Adaptive maintenance
C) Perfective maintenance
D) Preventive maintenance
✅ **Answer:** B) Adaptive maintenance

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23. In which scenario would reverse engineering most likely be used?

A) To improve system security
B) To recover or understand software whose source code is unavailable
C) To create a new software product from scratch
D) To test the software
✅ **Answer:** B) To recover or understand software whose source code is unavailable

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24. Which of the following is an example of preventive maintenance?

A) Modifying the software to ensure it performs better under increased load
B) Fixing a known bug in the system
C) Adapting software to a new operating system
D) Removing outdated features from the software
✅ **Answer:** A) Modifying the software to ensure it performs better under increased load

---

25. What is the main goal of re-engineering?

A) To convert old code into a new programming language
B) To remove redundant features from the system
C) To improve the structure and performance of software without altering its functionality
D) To develop entirely new features for the software

✅ **Answer:** C) To improve the structure and performance of software without altering its functionality

---

26. What does the reverse engineering process involve when applied to software?

A) Rewriting the software code to improve efficiency
B) Deconstructing and analyzing existing software to understand how it works
C) Testing software to find bugs
D) Adding new features to an existing software system
✅ **Answer:** B) Deconstructing and analyzing existing software to understand how it works

---

27. In software re-engineering, which of the following activities is typically performed?

A) Refactoring the code to improve its maintainability
B) Designing new software features
C) Building new software from scratch
D) Developing a new user interface
✅ **Answer:** A) Refactoring the code to improve its maintainability

---

28. Which of the following is a common challenge in software maintenance?

A) Lack of available design documentation
B) Overabundance of new features to add
C) Reduced need for ongoing testing
D) A clear and well-defined software architecture
✅ **Answer:** A) Lack of available design documentation

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29. In software maintenance, why is maintainability an important design principle?

A) It ensures the software is easy to change and update over time
B) It minimizes the software's execution time
C) It prevents the need for reverse engineering

D) It reduces the number of features
✅ **Answer:** A) It ensures the software is easy to change and update over time

---

30. Which of the following best describes perfective maintenance?

A) Maintenance focused on fixing defects
B) Maintenance focused on adapting software to a new environment
C) Maintenance focused on adding new features or improving the software's performance
D) Maintenance focused on identifying and preventing future issues
✅ **Answer:** C) Maintenance focused on adding new features or improving the software's performance

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31. Which of the following is a common result of reverse engineering?

A) A redesign of the software's architecture
B) A clear understanding of how a software system functions internally
C) A new version of the software with added features
D) The discovery of unnecessary software components
✅ **Answer:** B) A clear understanding of how a software system functions internally

---

32. Why is software re-engineering important for legacy systems?

A) It enables companies to reuse older systems with updated technologies
B) It reduces the time needed to develop new software from scratch
C) It fixes bugs and errors without any code changes
D) It updates the user interface of the system
✅ **Answer:** A) It enables companies to reuse older systems with updated technologies

---

33. What is a key benefit of preventive maintenance?

A) It ensures software meets current requirements
B) It anticipates and prevents future defects
C) It adds new features to the system

D) It fixes existing bugs in the software
✅ **Answer:** B) It anticipates and prevents future defects

---

34. Which of the following would NOT typically be considered adaptive maintenance?

A) Updating software to support a new operating system
B) Rewriting software in a new programming language
C) Modifying software to support new hardware
D) Adding new features to the system
✅ **Answer:** B) Rewriting software in a new programming language

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35. What does reverse engineering NOT typically involve?

A) Understanding the software's design and functionality
B) Extracting the source code from a compiled application
C) Modifying the software to improve its performance
D) Documenting the internal workings of the software
✅ **Answer:** C) Modifying the software to improve its performance

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36. How can refactoring assist in software maintenance?

A) It helps identify and fix defects
B) It allows for adding new features
C) It improves the software's internal structure without altering its functionality
D) It adds new functionality to the software
✅ **Answer:** C) It improves the software's internal structure without altering its functionality

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37. Which of the following is NOT a characteristic of good maintainable code?

A) Clear and consistent naming conventions
B) High coupling between components
C) Use of comments to explain complex logic
D) Modularity of code
✅ **Answer:** B) High coupling between components

---

38. Software re-engineering primarily involves which of the following?

A) Rewriting the software code from scratch
B) Making small changes to adapt the software to a new platform
C) Improving the software's internal design without changing its external functionality
D) Creating a new software product
✅ **Answer:** C) Improving the software's internal design without changing its external functionality

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39. What is the role of version control in software maintenance?

A) To reduce the number of bugs in the software
B) To track changes and manage different versions of the software
C) To optimize the software’s performance
D) To add new features to the software
✅ **Answer:** B) To track changes and manage different versions of the software

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40. Why is documentation important in software maintenance?

A) It allows the developers to write code faster
B) It helps maintain the software, especially when new developers are involved
C) It ensures the software will never require future maintenance
D) It speeds up the debugging process
✅ **Answer:** B) It helps maintain the software, especially when new developers are involved