Course: Software Configuration Management

Week 16: Final Exam

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Instruction

Before you begin the final exam, please take a moment to review these important instructions:

- ✓ Read each question carefully before answering.
- ✓ The exam includes a mix of multiple choice, short answer, and case-based questions.
- ✓ Work independently
- ✓ Manage your time wisely

Exam Structure

- Multiple Choice Questions (30 questions)
- Short Answer Questions (5 questions)
- Case Analysis Questions (3 questions)

  - Time allotted: **90 minutes**
  - Total point: **100%**

Questions

Part I: Multiple Choice

Instruction: Choose the correct answer from the given alternatives (2 pts each)

Questions (1/30)

1. Which of the following best describes Software Configuration Management (SCM)?

   A) Managing software users

   B) Controlling and documenting software changes

   C) Testing new software versions

   D) Scheduling project timelines

Questions (2/30)

2. Which SCM activity identifies components that make up a system?

A) Change control

B) Configuration identification

C) Status accounting

D) Auditing

Questions (3/30)

3. The main objective of configuration control is to:

   A) Monitor project budget

   B) Ensure that changes are properly approved and implemented

   C) Identify project risks

   D) Train project team members

Questions (4/30)

4. Configuration status accounting primarily deals with:

   A) Recording and reporting the status of configuration items

   B) Creating new baselines

   C) Managing user documentation

   D) Designing configuration tools

Questions (5/30)

5. A configuration baseline represents:

   A) A temporary version of the system

   B) An approved and stable version of configuration items

   C) A backup of all versions

   D) The earliest version of a software product

Questions (6/30)

6. Which document outlines how SCM activities are to be conducted?

A) Test Plan

B) Quality Plan

C) SCM Plan

D) Project Charter

Questions (7/30)

7. The role responsible for maintaining SCM repositories is:

   A) Project Manager

   B) Configuration Librarian

   C) Developer

   D) Business Analyst

Questions (8/30)

8. Which of the following ensures software integrity after changes?

A) Build management

B) Change control board (CCB)

C) Configuration audit

D) Versioning

Questions (9/30)

9. Which is NOT a core SCM activity?

A) Configuration identification

B) Change control

C) Quality assurance

D) Status accounting

Questions (10/30)

10. Version control systems like Git are primarily used for:

A) Managing hardware resources

B) Tracking changes to source code

C) Storing project documents only

D) Testing code performance

Questions (11/30)

11. In SCM, the term “CI” stands for:

A) Configuration Integration

B) Configuration Item

C) Continuous Implementation

D) Change Interface

Questions (12/30)

12. A configuration audit checks for:

A) Cost performance

B) Consistency between documentation and software

C) Market readiness

D) End-user satisfaction

Questions (13/30)

13. Who authorizes changes in a formal SCM process?

A) Developers

B) Testers

C) Change Control Board (CCB)

D) End Users

Questions (14/30)

14. Which phase of the project lifecycle first requires SCM planning?

A) Initiation

B) Design

C) Implementation

D) Closure

Questions (15/30)

15. The main benefit of SCM automation is:

A) Reducing staff workload

B) Ensuring faster and error-free configuration processes

C) Increasing documentation volume

D) Eliminating project planning

Questions (16/30)

16. A Functional Configuration Audit (FCA) verifies:

A) Hardware functionality

B) That software meets specified functional requirements

C) Budget constraints

D) Project deadlines

Questions (17/30)

17. Physical Configuration Audit (PCA) ensures:

A) Correct implementation of functional requirements

B) Product consistency with design and documentation

C) Change approval

D) Team compliance with SCM policies

Questions (18/30)

18. Which of the following is NOT a version control tool?

A) Git

B) Subversion (SVN)

C) Jenkins

D) Mercurial

Questions (19/30)

19. Configuration Drift occurs when:

A) The software is upgraded

B) Production and development environments become inconsistent

C) Project requirements change

D) SCM plan is revised

Questions (20/30)

20. Continuous Integration (CI) helps SCM by:

A) Automating code merges and builds frequently

B) Replacing configuration identification

C) Ignoring failed tests

D) Reducing documentation needs

Questions (21/30)

21. Which SCM artifact shows relationships between versions?

A) Traceability matrix

B) Source code repository

C) Product backlog

D) Test log

Questions (22/30)

22. Release Management ensures:

A) Uncontrolled deployment

B) Delivery of approved configurations to users

C) Random software builds

D) Removal of baselines

Questions (23/30)

23. Which is an example of a baseline?

A) Daily build version

B) Approved requirements document

C) User feedback

D) Change request draft

Questions (24/30)

24. Which is NOT a benefit of SCM?

A) Improved control

B) Enhanced traceability

C) Increased chaos

D) Reduced errors

Questions (25/30)

25. The SCM Plan should be developed during:

A) Project closure

B) Early project planning

C) Post-deployment

D) Testing only

Questions (26/30)

26. Audit reports primarily focus on:

A) Marketing strategies

B) End-user training

C) UI testing

D) Compliance with configuration baselines

Questions (27/30)

27. Which of the following is an SCM automation benefit?

A) Eliminating all human roles

B) Increasing change request backlog

C) Slowing release cycles

D) Reducing manual configuration errors

Questions (28/30)

28. The purpose of SCM in Agile projects is to:

A) Enable rapid iteration with version control

B) Remove structure and discipline

C) Reduce communication

D) Focus on documentation

Questions (29/30)

29. DevOps practices enhance SCM by:

A) Disconnecting development from deployment

B) Integrating development and operations through automation

C) Reducing testing frequency

D) Increasing manual interventions

Questions (30/30)

30. Which standard relates closely to SCM processes?

A) ISO 9001

B) ISO 14000

C) ISO/IEC/IEEE 12207

D) IEEE 830

Questions

Part II: Short Answer

Instruction: Give short answer for the following questions (3 pts each).

Questions (1-5/5)

1. Define Software Configuration Management and explain its main goal.?
2. What are the four core SCM process activities? Provide a brief description of each.
3. What is a configuration item (CI)? Give two examples.
4. How does automation improve the SCM process?
5. Why is release management important in

Questions

Part III: Case Analysis

Instruction: Analyze the following case scenario and provide your answer (3 pts each).

Questions (1/5)

Case 1: Version Control Conflict

During development, two team members modify the same file in a shared Git repository, leading to a conflict when merging.

Question: How should the SCM process handle this situation?

Questions (2/5)

Case 2: Unapproved Change Deployment

A developer accidentally deploys a change to production without CCB approval.

Question: What SCM controls should prevent this, and how should it be managed?

Questions (3/5)

Case 3: Configuration Drift in Cloud Environment

The test and production environments start showing differences in configuration settings, leading to inconsistent behavior.

Question: What SCM strategy helps address this issue?

Questions (4/5)

Case 4: Missing Traceability in Requirements and Code

During a project audit, the QA team discovers that several implemented features cannot be traced back to approved requirements. The development team claims they were minor “enhancements,” but no records exist in the SCM repository.

Question: What went wrong in this scenario, and how should the SCM process address?

Questions (5/5)

Case 5: Ineffective Release Rollback

After deploying a new release, users report several critical bugs. The release team attempts to roll back to the previous version but finds the old build is not properly archived or documented.

Question: What SCM weaknesses are revealed here, and what corrective measures should be taken?

The End!