



**NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY**

**FACULTY OF COMPUTING AND INFORMATICS
DEPARTMENT OF SOFTWARE ENGINEERING**

QUALIFICATION: BACHELOR OF COMPUTER SCIENCE	
QUALIFICATION CODE: 07BCMS	LEVEL: 6
COURSE: SOFTWARE PROCESSES	COURSE CODE: SPS611S
DATE: JULY 2024	PAPER: THEORY
DURATION: 3 HOURS	MARKS: 100

SECOND OPPORTUNITY/SUPPLEMENTARY EXAMINATION QUESTION PAPER	
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THIS QUESTION PAPER CONSISTS OF 4 PAGES
(Excluding this front page)

INSTRUCTIONS TO STUDENTS

1. Attempt all Questions.
2. All questions have to be answered in the answer booklet.
3. Clearly indicate the section and question number for each answer.
4. The allocation of marks is an indication of the extent of the expected answer.
5. Answering more than expected does not result in higher marks. Keywords alone are not enough.
6. There are no books, notes or any other additional aids allowed in the examination.
7. A non-programmable calculator is permissible.

SECTION A: TRUE/FALSE**[10 MARKS]**

Write all your answers in the answer booklet provided.

	Question	True	False
1	Requirements engineering involves only gathering and documenting requirements from stakeholders.		
2	The Spiral model is a risk-driven software development process model that combines elements of both waterfall and iterative development approaches.		
3	Software maintenance involves only fixing defects and errors in software systems after they have been deployed.		
4	The V-model is an agile software development methodology that emphasizes rapid iterations and customer collaboration.		
5	The primary focus of software configuration management (SCM) is to manage changes to software artefacts throughout the software development lifecycle.		
6	The primary goal of software project management is to minimize project scope and deliver only the essential features within the specified time and budget.		
7	The main focus of usability testing is to evaluate the performance and reliability of a software system.		
8	A software prototype is a fully functional version of a software system that is ready for deployment to production environments.		
9	The main purpose of software architecture is to define the detailed implementation of individual software components.		
10	The main focus of risk management in software development is to eliminate all risks from a project.		

SECTION B: MULTIPLE CHOICE**[10 MARKS]**

Write all your answers in the answer booklet provided.

1. Which type of testing focuses on evaluating the ease of use, efficiency, and user satisfaction of a software system?
- A. Unit testing
 - B. Integration testing
 - C. Usability testing
 - D. Performance testing

2. Which software development practice involves two developers working together at the same workstation, collaborating on the same piece of code in real-time?

- A. Code review
- B. Pair programming
- C. Test-driven development (TDD)
- D. Continuous integration (CI)

3. Which software development practice involves integrating code changes from multiple developers into a shared repository frequently?

- A. Continuous integration (CI)
- B. Continuous deployment (CD)
- C. Test-driven development (TDD)
- D. Pair programming

4. What is the primary goal of software architecture?

- A. To define detailed implementation of individual software components
- B. To manage and control changes to software artefacts
- C. To define the high-level structure and interactions of a software system
- D. To validate software requirements

5. Which software development practice involves writing tests before writing the code that implements the functionality?

- A. Pair programming
- B. Continuous integration
- C. Test-driven development (TDD)
- D. Continuous deployment

6. Which type of testing involves evaluating the performance, scalability, and reliability of a software system under various conditions?

- A. Usability testing
- B. Integration testing
- C. Performance testing
- D. Unit testing

7. Which software development process model involves integrating code changes from multiple developers into a shared repository frequently?

- A. Waterfall model
- B. Spiral model
- C. Agile model
- D. V-model

8. Configuration management (CM) is concerned with:

- A. policies, processes, and tools
- B. policies and processes
- C. policies and tools
- D. None of the above

9. The change management process is concerned with:

- A. Analyzing the costs and benefits of proposed changes
- B. Approving those changes that are worthwhile
- C. Tracking which components in the system have been changed.
- D. All of the above

10. Which of the following is a type of software maintenance:

- A. Fault repairs
- B. Environmental adaptation
- C. Functionality addition
- D. All of the above

SECTION C: STRUCTURED QUESTIONS

[40 Marks]

Write all your answers in the answer booklet provided.

Question 1

Discuss the importance of software architecture in software engineering, as well as how architectural choices influence software quality and maintenance. (4 marks)

Question 2

Briefly describe the three main types of software maintenance. (6 marks)

Question 3

Suggest five possible problems that could arise if a company does not develop effective configuration management policies and processes. (10 marks)

Question 4

Code-and-fix is a development model that is commonly used. Give three advantages and three disadvantage of Code-and-Fix model. (10 marks)

Question 5

Briefly describe five principles of agile methods. (10 marks)

SECTION D: SENARIO-BASED QUESTION**[40 Marks]**

Write all your answers in the answer booklet provided.

Question 1

Assume that a medical receptionist accesses an electronic system to view patient information. Develop a sequence diagram showing the interactions involved when a medical receptionist want to view patient information. Show the notation used to denote alternatives. (15 marks)

Question 2

Design a use case diagram for a hotel management system. The system should allow hotel staff to manage room bookings, check-ins, check-outs, room availability, and guest services. Additionally, guests should be able to make room reservations, check-in online, request additional services, and check-out. Identify the actors, use cases, and their relationships in the use case diagram. (25 marks)

***** End of Exam Paper *****