

ENSP103 Bachelor of Technology in Computer Science Engineering (B.Tech CSE(FSD))

Re-appear, Examination

Dec, 2024

ENSP103-Software Craftsmanship

Time: 2.5 Hours

Maximum Marks: 50

Instructions:

- 1) Question No. 1 under Section-A is compulsory.
- 2) Attempt any four from Q. No. 2 to Q. No. 6 under Section-B
- 3) Attempt any two from Q. No. 7 to Q. No.9 under Section-C

Section-A(Compulsory)

1. (a) Fill in the blanks with appropriate words: 3

[CO-2] [L-1]

- (i) The Software craftsmanship emphasizes the importance of crafting code that is both _____ and ____.
- (ii) One of the fundamental principles of software craftsmanship is that " _____ is the best design." This principle promotes simplicity, avoiding unnecessary complexity.
- (iii) Code _____ is a core practice in software craftsmanship that involves improving code structure and design while maintaining its external behavior.

1. (b) Give the term used for the following: 2

[CO-1]

- (i) The practice of ensuring that code is easy to read, understand, and maintain is often referred to as _____.
- (ii) These principles guide software craftsmanship and include simplicity, clarity, and avoiding unnecessary complexity in code.

1. (c) State one function of each of the following: 2

[CO-2] [L-]

- (i) The _____ practice in software craftsmanship emphasizes the importance of frequently integrating code changes into a shared repository to detect integration issues early.

- (ii) State one function of the "test-driven development(TDD)" process in software craftsmanship.

1. (d) Match the items given in Column-A with those in Column-B: 3

[CO-3] [L-]

Column-A

Column-B

- | | |
|-------------------------------|---------------------------------|
| (i) Code Review | (a) Practice of Breaking Tasks. |
| (ii) Refactoring | (b) Continual Improvement. |
| (iii) Test Driven Development | (c) Code inspection |

Section-B

- Write Provide a code example in a programming language of your choice that demonstrates the application of software craftsmanship principles. Explain how your code adheres to these principles and how it enhances code quality and maintainability. (5) [CO-2] [L-2]
- Explain the concept of "code smell" in the context of software craftsmanship. Provide examples of common code smells and describe how they can be addressed. (5) [CO-2] [L-2]
- Discuss Discuss the role of automated testing in software craftsmanship and its significance in ensuring code reliability and quality. Explain how test-driven development (TDD) contributes to software craftsmanship. (5) [CO-2] [L-2]
- Compare Describe the importance of pair programming in software craftsmanship and how it promotes code quality and knowledge sharing among team members. (5) [CO-2] [L-3]
- Describe and Walk through the process of refactoring a piece of code to make it more maintainable and follow best practices of software craftsmanship. Provide a code example before and after refactoring. (5) [CO-2] [L-6]

Section-C

- Outline Outline the steps involved in conducting a code review in a software craftsmanship approach. Explain how to identify and address issues effectively during a code review. (10) [CO-2] [L-8]
- Design a flowchart Create a flowchart depicting the process of identifying and resolving Bugs and performance issues in a software craftsmanship context. Offer a code example that demonstrates the application of optimization techniques. (10) [CO-2] [L-7]
- Present a software craftsmanship code snippet where the principles of simplicity, readability, and maintainability are demonstrated. Explain how these principles are incorporated into the code and how they contribute to software quality. (10) [CO-2] [L-7]