

Advanced Software Engineering Knowledge

Software Engineering · Answer Key · 8 Questions

1. Which ISO/IEC standard specifically defines the software life cycle processes?

- A) ISO/IEC 12207**
- B) ISO/IEC 27001
- C) ISO/IEC 9000
- D) ISO/IEC 25010

2. In the context of the COCOMO II model, what does the 'Exponent' parameter (b) primarily represent?

- A) The degree of project scale economies or diseconomies**
- B) The total number of source lines of code
- C) The skill level of the development team
- D) The cost of hardware resources

3. Which formal method for software specification is based on Zermelo-Fraenkel set theory and first-order predicate logic?

- A) The Z notation**
- B) Petri Nets
- C) Statecharts
- D) Algebraic Specification

4. What is the primary function of the 'Cyclomatic Complexity' metric as defined by Thomas J. McCabe?

- A) To measure the number of linearly independent paths through a program's source code**
- B) To calculate the total memory allocation of a software system
- C) To quantify the number of defects found per KLOC
- D) To estimate the time required for regression testing

5. Which of these design patterns is categorized as a 'Behavioral' pattern in the original Gamma et al. (Gang of Four) catalog?

- A) Memento**
- B) Abstract Factory
- C) Bridge
- D) Composite

6. The 'Law of Demeter' for software design is primarily concerned with minimizing what?

A) Coupling between software modules

- B) The total number of classes in a system
- C) The time taken for garbage collection
- D) The use of global variables

7. In software configuration management, what is the specific term for a collection of software items that are treated as a single unit?

A) Baseline

- B) Branch
- C) Repository
- D) Component

8. What does the 'L' stand for in the SOLID principles of object-oriented design?

A) Liskov Substitution Principle

- B) Layered Architecture Principle
- C) Logical Encapsulation Principle
- D) Linear Inheritance Principle