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DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE
Regular/Supplementary Winter Examination – 2024

Course: Computer Engineering

Subject Code & Name: BTCOC501: Software Engineering

Branch: Computer Engineering

Semester: V

Time: 3 Hours

Max. Marks: 60

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Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Assume suitable data if necessary.

Q.1. Multiple Choice Questions:

Which of the following is NOT a software engineering activity? (1)

- a. Specification
- b. Development
- c. Validation
- d. Hardware Design

Which model is suitable for projects with well-defined requirements? (1)

- a. Spiral Model
- b. Waterfall Model
- c. Agile Model
- d. Prototype Model

Which of the following is a type of non-functional requirement? (1)

- a. User Interface
- b. Security
- c. Data Storage
- d. Business Logic

What is the primary goal of requirement elicitation? (1)

- a. To validate the software
- b. To understand the user needs
- c. To design the database
- d. To write the code

What does cohesion refer to in software design? (1)

- a. The degree to which different modules are dependent on each other
- b. The degree to which elements within a module are related to each other
- c. The complexity of the code

d. The number of lines of code

Which UML diagram is used to model the dynamic behavior of a system? (1)

- a. Class Diagram
- b. Use Case Diagram
- c. Activity Diagram
- d. Deployment Diagram

What is the purpose of test-driven development (TDD)? (1)

- a. To write tests after the code is written
- b. To write tests before the code is written
- c. To skip testing altogether
- d. To write documentation

What is black box testing? (1)

- a. Testing the internal structure of the software
- b. Testing the functionality without knowing the internal structure
- c. Testing the code coverage
- d. Testing the database connectivity

Which of the following is a dependability property? (1)

- a. Portability
- b. Usability
- c. Availability
- d. Maintainability

What is the main goal of software security? (1)

- a. To improve performance
- b. To protect data and systems from unauthorized access
- c. To reduce development costs
- d. To increase code complexity

Which of the following is a type of user testing? (1)

- a. Unit Testing
- b. Integration Testing
- c. Alpha Testing
- d. Regression Testing

What is the purpose of release testing? (1)

- a. To test individual components
- b. To test the system as a whole before release
- c. To test the system after release
- d. To test the database

****Q.2. (From UNIT 1)****

A. Explain the importance of software engineering principles in developing large-scale software systems. (6)

B. Describe the different phases of the software development life cycle (SDLC) and their key activities. (6)

****Q.3. (From UNIT 2)****

- A. Discuss different types of software requirements, providing examples for each. (6)
- B. Explain various requirement elicitation techniques and their advantages and disadvantages. (6)

****Q.4. (From UNIT 3) (Attempt any TWO)****

- A. Explain the concepts of coupling and cohesion in software design. Discuss how they impact the maintainability and reusability of software. (6)
- B. Describe the Unified Modeling Language (UML) and its role in object-oriented design. Provide examples of different UML diagrams and their purpose. (6)
- C. Discuss different architectural styles and patterns used in software design, and explain how these patterns can improve the quality of the software. (6)

****Q.5. (From UNIT 4) (Attempt any TWO)****

- A. Explain the benefits of using design patterns in software development. Provide examples of commonly used design patterns. (6)
- B. Discuss the challenges and best practices associated with open-source development. (6)
- C. Describe the key considerations for design and implementation in the context of application architectures. (6)

****Q.6. (From UNIT 5) (Attempt any TWO)****

- A. Explain the different levels of software testing (unit, integration, system, acceptance) and the purpose of each level. (6)
- B. Describe the concepts of availability, reliability, and safety in the context of dependable systems. (6)
- C. Discuss the importance of security in software development and explain different security threats and vulnerabilities. (6)