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

Course: Computer Engineering **Subject Code & Name:** BTCOC503: Software Engineering **Branch:** Computer Engineering **Semester:** V

Time: 3 Hours **Max. Marks:** 80

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 (1 mark each):

1. Which of the following is NOT a primary goal of software engineering? (a) Developing high-quality software (b) Managing software projects effectively (c) Minimizing development costs (d) Maximizing programmer creativity (1)

2. A software requirements specification (SRS) document primarily serves to: (a) Detail the coding standards (b) Define the software's functionality and constraints (c) Explain the testing methodologies (d) Describe the deployment environment (1)

3. Which model is best suited for projects with evolving requirements? (a) Waterfall (b) Spiral (c) Agile (d) V-model (1)

4. What is a use case diagram primarily used for? (a) Showing class relationships (b) Illustrating system behavior from a user's perspective (c) Defining data structures (d) Representing database schemas (1)

5. Which elicitation technique involves observing users in their natural work environment? (a) Interviews (b) Prototyping (c) Questionnaires (d) Ethnographic studies (1)

6. What is the purpose of requirements validation? (a) To gather requirements (b) To ensure requirements are correct, consistent, and complete (c) To prioritize requirements (d) To manage requirements changes (1)

7. A context model primarily shows: (a) Internal system components (b) The system's boundaries and its interaction with the external environment (c) Data flow within the system (d) User interface design (1)

8. Which UML diagram is best suited for visualizing the static structure of a system? (a) Sequence diagram (b) Statechart diagram (c) Class diagram (d) Activity diagram (1)

9. Behavioral modeling focuses on: (a) The system's static structure (b) The system's dynamic behavior and interactions (c) Data flow within the system (d) User interface design (1)

10. What is a crucial aspect of requirements management? (a) Ignoring change requests (b) Tracking and managing changes to requirements (c) Developing the software without considering requirements (d) Ignoring stakeholder feedback (1)

11. Which software development lifecycle model emphasizes iterative development and incremental delivery? (a) Waterfall (b) Spiral (c) Agile (d) RAD (1)

12. What does the acronym SRS stand for in software engineering? (a) Software Requirement Specification (b) System Requirements Specification (c) Software Resource Specification (d) System Resource Specification (1)

Q.2: (UNIT 1)

A) Explain the different software development life cycle (SDLC) models and their suitability for various project types. (6) B) Discuss the importance of feasibility studies in the initial stages of software development. (6)

Q.3: (UNIT 2)

A) Describe the process of requirements elicitation and explain at least three different techniques used in this process. (6) B) What is a Software Requirements Specification (SRS) document? Explain its key components and importance in software development. (6)

Q.4: (UNIT 3) Solve any TWO of the following:

A) Explain the concept of system modeling and discuss the different types of system models used in software development. (6) B) Describe the purpose and usage of UML diagrams in software development. Provide examples of at least three different UML diagrams. (6) C) Explain the importance of behavioral modeling in software development. Discuss the advantages and disadvantages of using state diagrams for behavioral modeling. (6)

Q.5: (UNIT 4) Solve any TWO of the following:

A) Explain the importance of software testing in the software development lifecycle. (6) B) Discuss different levels of software testing (unit, integration, system, acceptance) with examples. (6) C) Explain various software testing methodologies and their application in different software development contexts. (6)

Q.6: (UNIT 5) Solve any TWO of the following:

A) Explain the concept of software configuration management and its importance in large software projects. (6) B) Describe different types of software maintenance and their impact on software quality and cost. (6) C) Discuss the challenges faced in software maintenance and propose strategies to mitigate these challenges. (6)