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 Choose the correct option for the following MCQs: (12)

1. Which of the following is NOT a key characteristic of good software requirements? (a) Unambiguous (b) Complete (c) Vague (d) Consistent (1)

2. What is the primary purpose of requirements elicitation? (a) To design the software (b) To code the software (c) To understand user needs (d) To test the software (1)

3. A use case diagram is primarily used to model: (a) Data structures (b) System architecture (c) User interactions (d) Software components (1)

4. Which model depicts the static structure of a system? (a) State diagram (b) Activity diagram (c) Class diagram (d) Sequence diagram (1)

5. What does UML stand for? (a) Unified Modeling Language (b) Universal Modeling Language (c) User Modeling Language (d) Unique Modeling Language (1)

6. The process of verifying that the requirements meet the stakeholder's needs is called: (a) Requirements elicitation (b) Requirements analysis (c) Requirements validation (d) Requirements management (1)

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

8. What is a software requirements specification (SRS) document? (a) A document that outlines the design of the software (b) A document that describes the functionality and constraints of the software (c) A document that details the testing procedures (d) A document that explains the deployment process (1)

9. Which technique involves building a small-scale version of the software to gather feedback? (a) Waterfall (b) Prototyping (c) Spiral (d) RAD (1)

10. Which diagram shows the flow of control between different parts of a system? (a) Class diagram (b) Activity diagram (c) Use case diagram (d) Deployment diagram (1)

11. What is the purpose of a context diagram? (a) To show the internal workings of a system (b) To show the system's boundary and its interaction with external entities (c) To model the data flow within a system (d) To model the system's behavior (1)

12. What is a key benefit of using a model-driven approach to software development? (a) Reduced coding effort (b) Improved communication (c) Early detection of errors (d) All of the above (1)

Q.2 Solve the following: (12)

A) Explain the concept of requirements engineering and its importance in software development. (6) B) Discuss various requirements elicitation techniques with examples. (6)

Q.3 Solve the following: (12)

A) What is a Software Requirements Specification (SRS) document? Describe the essential components of a well-written SRS. (6) B) Explain the process of requirements validation and the techniques used to ensure the quality of requirements. (6)

Q.4 Solve any TWO of the following: (12)

A) What is system modeling? Explain its significance in software development. (6) B) Describe the different types of UML diagrams with their purposes. (6) C) Explain the concept of behavioral modeling with suitable examples. (6)

Q.5 Solve any TWO of the following: (12)

A) Explain the concept of context models in system modeling and provide an example. (6) B) Discuss the importance of interaction models in understanding user interactions with a system. (6) C) Describe different types of structural models used in software development and their applications. (6)

Q.6 Solve any TWO of the following: (12)

A) What is requirements management? Explain the importance of requirements traceability. (6) B) Describe different techniques for requirements prioritization and their applications. (6) C) Discuss the challenges involved in managing requirements throughout the software development lifecycle. (6)