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

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 key principle of software engineering? a) Abstraction b) Decomposition c) Redundancy d) Modularity (1)

2. A software requirements specification (SRS) document primarily aims to: a) Describe the design of the software. b) Detail the testing procedures. c) Define what the software should do. d) Explain how the software will be maintained. (1)

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

4. What is the purpose of requirements validation? a) To gather requirements from stakeholders. b) To ensure that the requirements are feasible and consistent. c) To document the requirements formally. d) To implement the requirements in code. (1)

5. A use case diagram is primarily used to model: a) The system's data structures. b) The system's interactions with actors. c) The system's internal processes. d) The system's physical architecture. (1)

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

7. What is the main purpose of requirements management? a) To control costs of the project b) To ensure the quality of the software c) To track and control changes to requirements. d) To design the user interface (1)

8. Which of the following is a common technique for requirements elicitation? a) Code review b) Unit testing c) Brainstorming d) Debugging (1)

9. A good software requirements specification should be: a) Ambiguous and open to interpretation. b) Concise, complete, and consistent. c) Focused solely on technical details. d) Written only by developers. (1)

10. What does UML stand for? a) Unified Modeling Language b) Universal Modeling Logic c) User Management Layer d) Unique Markup Language (1)

11. Requirements traceability helps in: a) Hiding design flaws b) Managing changes and impacts c) Reducing testing effort d) Improving developer morale (1)

12. Which diagram best illustrates the flow of control in a system? a) Class diagram b) Activity diagram c) Use case diagram d) Deployment diagram (1)

Q.2 Solve the following:

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:

A) Define the Software Requirements Specification (SRS) document and explain its key components. (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:

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:

A) Explain the concept of context models and their role in system design. (6)

B) Describe different types of interaction models used in software engineering. (6)

C) Discuss the importance of structural models in software development and provide examples. (6)

Q.6 Solve any TWO of the following:

A) Explain the importance of requirements management in a software project. (6)

B) Discuss different techniques for managing requirements changes throughout the software development lifecycle. (6)

C) Describe the challenges associated with requirements management and how to mitigate them. (6)