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 Choose the correct answer for the following multiple choice questions:

1. Which of the following is NOT a key process in software requirements engineering? a) Requirements elicitation b) Requirements validation c) Requirements implementation d) Requirements management (1)

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

3. What is the purpose of requirements validation? a) To gather requirements from stakeholders. b) To ensure that the requirements are consistent and complete. c) To build a prototype of the software. d) To deploy the software to end-users. (1)

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

5. What is a use case diagram primarily used for? a) Modeling the system's data structures. b) Describing the system's interactions with actors. c) Illustrating the system's internal processes. d) Representing the system's class hierarchy. (1)

6. A functional requirement describes: a) Non-functional characteristics of the system. b) What the system should do. c) How the system should be implemented. d) The performance constraints of the system. (1)

7. A non-functional requirement describes: a) Specific features of the system. b) Qualities of the system, such as performance or security. c) The system's data models. d) The system's user interface. (1)

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

9. Which diagram is best suited for visualizing the flow of data within a system? a) Class diagram b) Use case diagram c) Data flow diagram d) Sequence diagram (1)

10. Which model focuses on the system's external behavior and interactions with its environment? a) Structural model b) Behavioral model c) Context model d) Interaction model (1)

11. What is the primary goal of requirements management? a) To develop the software quickly. b) To control changes to the requirements. c) To design the user interface. d) To test the software thoroughly. (1)

12. Which of the following is a crucial aspect of successful requirements elicitation? a) Ignoring stakeholder feedback. b) Using only one elicitation technique. c) Effective communication and collaboration. d) Focusing solely on technical details. (1)

Q.2 Solve the following:

A) Define software requirements engineering. Explain the different stages involved in the requirements engineering process. (6)

B) Discuss the importance of a well-defined software requirements specification (SRS) document. What are the key characteristics of a good SRS? (6)

Q.3 Solve the following:

A) Explain the concept of requirements elicitation. Describe at least three different techniques used for requirements elicitation, providing examples of when each technique might be most appropriate. (6)

B) Discuss the various challenges encountered during requirements elicitation and analysis, and suggest strategies to mitigate these challenges. (6)

Q.4 Solve any TWO of the following:

A) What is a context model? Explain its purpose and how it contributes to the overall system understanding. Provide a simple example. (6)

B) Describe different types of interaction models used in system modeling, and explain their purpose in software development. Illustrate with examples. (6)

C) Explain the concept of behavioral modeling. Discuss the importance of behavioral models in software development and provide an example of a behavioral model. (6)

Q.5 Solve any TWO of the following:

A) Explain the concept of structural modeling and its importance in software design. (6)

B) Discuss different types of UML diagrams used for structural modeling, explaining their purpose and providing examples. (6)

C) Compare and contrast the use of class diagrams and entity-relationship diagrams in structural modeling. (6)

Q.6 Solve any TWO of the following:

A) What is requirements validation? Explain different techniques used for validating software requirements. (6)

B) Discuss the importance of requirements management in software projects. Explain how requirements management helps in managing changes and ensuring consistency throughout the software development lifecycle. (6)

C) Describe different types of requirements traceability matrices and explain their role in managing requirements throughout the software development lifecycle. (6)
