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 characteristic of good software requirements? a) Unambiguous b) Complete c) Subjective d) Consistent (1)
2. Requirements elicitation involves: a) Writing code b) Gathering information from stakeholders c) Testing the software d) Deploying the software (1)
3. A use case diagram is primarily used to model: a) Data structures b) System architecture c) User interactions with the system d) Database relationships (1)
4. Which model is used to represent the static structure of a system? a) State machine diagram b) Class diagram c) Sequence diagram d) Activity diagram (1)
5. What does UML stand for? a) Unified Modeling Language b) Universal Modeling Language c) User Modeling Language d) Unit Modeling Language (1)
6. Requirements validation aims to: a) Gather requirements b) Verify that requirements are correct and consistent c) Manage requirements changes d) Analyze requirements (1)
7. A software requirements specification (SRS) document should be: a) Informal and brief b) Formal, complete, and unambiguous c) Written only by developers d) Only for internal use (1)
8. Which of the following is NOT a common requirements elicitation technique? a) Interviews b) Prototyping c) Code reviews d) Surveys (1)
9. A context model shows: a) The internal workings of a system b) The system's boundary and its interaction with the environment c) The data flow within a system d) The system's user interface (1)
10. What is the purpose of requirements management? a) To write code. b) To control and track changes to requirements. c) To test the software. d) To design the database. (1)
11. Which diagram best illustrates the sequence of interactions between objects? a) Class diagram b) Use case diagram c) Sequence diagram d) State diagram (1)

12. What is a crucial aspect of effective requirements engineering? a) Ignoring stakeholder input b) Rapid prototyping without feedback c) Clear communication and collaboration d) Neglecting documentation (1)

Q.2 Solve the following:

A) Define software requirements engineering. Explain the different phases involved in the software 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 various techniques used for requirements elicitation. Compare and contrast at least three different techniques. (6)

B) Describe the process of requirements analysis and how it contributes to the overall success of a software project. (6)

Q.4 Solve any TWO of the following:

A) What is system modeling? Explain the importance of using different system modeling techniques in software development. (6)

B) Describe the purpose and usage of different UML diagrams such as class diagrams, sequence diagrams, and state diagrams in software design. (6)

C) Explain the concept of behavioral modeling and provide examples of how it is used to represent dynamic aspects of a system. (6)

Q.5 Solve any TWO of the following:

A) Discuss the importance of requirements validation and verification in software development. (6)

B) Explain different techniques used for requirements validation and verification. (6)

C) Describe the challenges involved in managing requirements throughout the software development lifecycle. (6)

Q.6 Solve any TWO of the following:

A) Explain the concept of requirements traceability and its benefits in software development. (6)

B) Discuss different methods for managing requirements changes during the software development process. (6)

C) Describe the role of requirements management tools in improving the efficiency and effectiveness of requirements engineering. (6)