

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE Regular/Supplementary Winter Examination – 2024 Course: B. Tech Branch: Computer Engineering/ Computer Science And Engg Semester: V Subject Code: Software Engineering (BTCOC503) Max Marks: 60 Date: 11/02/2025 Duration: 3 Hr.			
Instructions to the Students: 1. Each question carries 12 marks. 2. Question No. 1 will be compulsory and include objective-type questions. 3. Candidates are required to attempt any four questions from Question No. 2 to Question No. 6. 4. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in () in front of the question. 5. Use of non-programmable scientific calculators is allowed. 6. Assume suitable data wherever necessary and mention it clearly.			
		(Level/CO)	Marks
Q. 1	Objective-type questions. (Compulsory Question)		12
1	Which of the following aspects of software development is central to Hyrum's Law? a) Writing clean and clever code b) Handling trade-offs in design decisions c) Dependence on all observable behaviours of an API d) Ensuring compatibility with various programming languages		1
2	Why is scalability an essential focus in Software Engineering? a) It simplifies debugging and testing processes. b) It ensures software can handle increasing demands effectively. c) It reduces the number of programming languages used. d) It minimises the time required for development.		1
3	Which software principle emphasizes breaking down a system into smaller, self-contained modules? a) Abstraction b) Modularity c) Encapsulation d) Single Responsibility Principle		1
4	What is the purpose of a Minimum Viable Product (MVP) in software development? a) To finalize software design for large-scale deployment b) To validate design, requirements, and new business ideas c) To reduce the time required for product launch d) To build software without feedback from end users		1
5	Which of the following best describes a Minimum Viable Product (MVP)? a) A fully functional software product ready for deployment b) A prototype designed for internal use only c) A version of the product with core features to validate design		1

	and requirements d) A set of software components developed from a shared codebase		
6	Which of these is NOT a characteristic of DevOps? a) Continuous delivery of software b) Automation of repetitive tasks c) Sequential and rigid development cycle d) Integration of development and IT operations		1
7	What is the primary purpose of version control systems (VCS) like Git? a) Social networking b) Managing changes to files over time c) Creating graphics for software projects d) Developing software without collaboration		1
8	In Git, what does the git pull command do? a) Copies a repository from a remote server to local storage b) Fetches and merges changes from a remote repository c) Deletes a branch from the remote repository d) Creates a new branch in the local repository		1
9	In the context of software testing, what does test coverage measure? A. The efficiency of test execution B. The compatibility of the software across platforms C. The amount of application code exercised by the tests D. The performance of code under stress		1
10	Why is it important to test edge cases in software testing? A. To ensure basic functionality works B. To test scenarios with minimal impact C. To handle unusual or extreme input values D. To avoid unnecessary test cases		1
11	What is the main purpose of static code analysis (SCA) ? A. To execute the code and detect runtime errors. B. To identify potential issues and vulnerabilities without executing the code. C. To refactor code automatically based on best practices. D. To improve execution speed during runtime.		1
12	What is NOT a key benefit of code review? A. Finding defects B. Sharing code ownership C. Automated debugging of runtime errors D. Improving code readability		1
Q. 2	Solve the following.		12
A)	In the context of Software Engineering, describe a scenario where addressing trade-offs (e.g., security versus usability) is critical. How would you approach deciding on such a scenario?		6
B)	Compare the advantages and disadvantages of the Waterfall Model and Agile Methodology in software process models. When would each be appropriate?		6
Q.3	Solve the following.		12

A)	Compare and contrast the roles of individual effort in computer programming and collaboration in software engineering. How do effective collaboration and version management tools enhance the software development process?	6
B)	Discuss the role of stakeholders such as product teams and operations teams in ensuring the success of a software project. How do their responsibilities differ?	6
Q. 4	Solve Any Two of the following.	12
A)	DevOps emphasizes automation and continuous delivery. Explain the role of tools such as CI/CD pipelines and containerization in achieving these goals. Provide examples of how companies like Netflix or Uber have benefited from these practices.	6
B)	Discuss the role of the .gitignore file in Git repositories. Why is it important, and how does it improve the efficiency of version control? Provide an example of a typical .gitignore file content.	6
C)	You are working on a new feature in your project and want to create a separate workspace to avoid impacting the main branch. Which Git command would you use to create and switch to a new branch named feature-xyz?	6
Q.5	Solve Any Two of the following.	12
A)	Discuss the differences between Distributed Version Control Systems (DVCS) and Centralized Version Control Systems (CVCS). How does DVCS address the limitations of CVCS?	6
B)	Discuss the cultural challenges faced by organizations adopting DevOps practices. What strategies can be implemented to overcome resistance and ensure successful integration?	6
C)	You accidentally committed sensitive information (e.g., API keys) into your repository. Which Git command would you use to remove the last commit but keep the changes in your working directory?	6
Q. 6	Solve Any Two of the following.	12
A)	Explain the differences between unit testing, integration testing, and user acceptance testing. What are test fixtures, and why are they useful in software testing?	6
B)	Describe the role of documentation in improving code quality. What are the key best practices for conducting effective code reviews?	6
C)	How does virtualization enable application compatibility testing? Explain how resource optimization is achieved through virtualization.	6
*** End ***		