



PRESIDENCY UNIVERSITY

BENGALURU

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End - Term Examinations – May / June 2026

Date: 27-05-2026

Time: 01:00pm – 04:00pm

School: SOCSE	Program: CIT	
Course Code: CIT3417	Course Name: Version control and Collaborative IoT software development	
Semester: VI	Max Marks: 100	Weightage: 50%

CO - Levels	C01	C02	C03	C04	C05
Marks	25	25	25	25	-

Instructions:

- Read all questions carefully and answer accordingly.
- Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks.

10Q x 2M=20M

1.	What is the state of a file in Git after it has been modified but not yet staged using git add?	2 Marks	L1	C01
2.	After running git add file1.cpp, what is the state of the file in the staging area?	2 Marks	L1	C01
3.	Why do developers use rebase?	2 Marks	L2	C02
4.	List all the stages in release pipeline.	2 Marks	L1	C03
5.	A developer wants to avoid a merge commit and keep history linear. Which approach should be used?	2 Marks	L2	C02
6.	A new file named data.txt is copied from a D:\source directly into local git working directory, what is the initial state of data.txt	2 Marks	L2	C02
7.	During cherry-pick, a conflict occurs. What is the next step?	2 Marks	L2	C02
8.	Why are "Optimizations" typically disabled in a Debug Build?	2 Marks	L2	C04
9.	What is the role of README.md in a repository?	2 Marks	L1	C04
10.	A pull request shows conflicts. What does this indicate?	2 Marks	L2	C03

Part B

Answer the Questions.

Total Marks 80M

11.	a.	Compare and contrast the architectures of local and remote repositories in Git, including a neat diagram to illustrate how data flows between them.	10 Marks	L2	C01
Or					
12.	a.	Illustrate how branching strategies act as a 'fail-safe' for production environments with two distinct scenarios.	10 Marks	L2	C01

13.	a.	Repo contains files tracked main.js, styles.css, index.html. Following git Operations are performed: 1. Edit all three files. 2. Stage only main.js and styles.css. 3. Delete index.html physically. 4. Create untracked build.js and build.css. 5. Edit main.js again (unstaged changes). a) Predict git status -s output, explaining each file's area b) After git commit, describe new states. What happens to index.html deletion?	10 Marks	L2	C01
Or					
14.	a.	Explain the "Three-Tree Architecture" of a Local Git Repository (Working Directory, Staging Area, and HEAD). Describe the complete flow of moving a C source file from the working directory to a Remote Repository, including all necessary commands.	10 Marks	L2	C01

15.	a.	During software testing, it is observed that a particular feature works correctly in an earlier build but fails in a later build. The tester provides both the working build and the failing build to the developer. Explain how the developer can use Git tools to: i) Compare the two builds. ii) Identify the faulty commit iii) Determine the root cause of the issue Describe the complete step-by-step process.	10 Marks	L3	C02
Or					

16.	a.	A production issue is reported, and the fix is already available in a different branch. However, the main branch contains several unrelated changes. Illustrate how the developer can use Git tools to: i) Locate the required fix in another branch ii) Apply only that fix to the production branch iii) Ensure that no unnecessary changes are introduced	10 Marks	L3	C02
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17.	a.	Explain the concept of CI/CD pipeline and its role in automating builds and releases.	10 Marks	L2	C02
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Or

18.	a.	Describe the mechanical process of a Three-Way Merge in Git. Explain how merge conflicts arise during this process and provide a step-by-step technical guide on how a developer should resolve a conflict in a C source file while maintaining code integrity	10 Marks	L2	C02
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19.	a.	During development, a bug is identified in a previously committed version of the code. Explain how a developer can use Git to locate, fix, and manage the bug efficiently. Prepare the complete workflow including identification, fixing, and updating the repository.	10 Marks	L3	C03
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	b.	Explain the process followed by a tester to report a software failure or defect to the developer during the testing phase.	10 Marks	L2	C03
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Or

20.	a.	During the testing phase, tester identified a defect. Choose the steps to formally pass on for correction.	10 Marks	L3	C03
	b.	What is the release? Explain in detail with example the release pipe line.	10 Marks	L2	C03

21.	a.	A team of developers is working on a project hosted on GitHub. Explain the complete workflow starting from Creating a repository to Merging it into the main branch	10 Marks	L2	C04
	b.	Illustrate the advantages of performing daily rebasing in a collaborative software development environment.	10 Marks	L3	C04
Or					

22.	a.	In a team project, developers are required to follow a pull request-based workflow. Explain the complete process of developing a feature using a feature branch, pushing it to GitHub, creating a pull request, and merging it into the main branch	10 Marks	L2	C04
	b.	A developer merges a feature branch into the local main branch without pulling the latest changes from the remote repository in GitHub and then pushes it. Illustrate: Problems that may arise, How Git handles such situations, Steps to avoid these issues	10 Marks	L3	C04