**Q: What is GitHub?**
A: GitHub is a cloud-based platform for hosting Git repositories with collaboration, version control, and CI/CD features.

**Q: Difference between Git and GitHub?**
A: Git is a version control system; GitHub is a hosting service for Git repositories with extra tools.

**Q: What is a repository?**
A: A storage space containing project files and their history.

**Q: What is a commit?**
A: A snapshot of changes in the repository.

**Q: What is a branch?**
A: A separate line of development within a repository.

**Q: What is a pull request (PR)?**
A: A request to merge changes from one branch to another.

**Q: What is a fork?**
A: A personal copy of someone else's repository.

**Q: What is a merge conflict?**
A: A conflict when two branches modify the same part of a file.

**Q: How do you resolve merge conflicts?**
A: Edit the conflicting files manually, then commit the resolved version.

**Q: What is GitHub Actions?**
A: A CI/CD automation tool for building, testing, and deploying code.

**Q: What is a README file?**
A: Documentation describing the project.

**Q: What is .gitignore?**
A: A file specifying which files Git should ignore.

**Q: What are GitHub Issues?**
A: A tool for tracking bugs, tasks, and enhancements.

**Q: What are GitHub Projects?**
A: Agile boards used for task and workflow management.

**Q: What is GitHub Wiki?**
A: A documentation system inside a repository.

**Q: Explain 'git clone'.**
A: Copies a remote repository to your local system.

**Q: Explain 'git pull'.**
A: Fetches and merges changes from a remote repository.

**Q: Explain 'git push'.**

A: Uploads local commits to the remote repository.

**Q: What are GitHub Webhooks?**
A: Automated triggers that notify external services when events occur.

**Q: What is a release in GitHub?**
A: A packaged version of software for distribution.

**Q: What is tagging?**
A: Marking a specific commit, commonly used for releases.

**Q: Difference between public and private repositories?**
A: Public: visible to everyone. Private: restricted access.

**Q: What is a contributor?**
A: A user who contributes code, issues or PRs to a project.

**Q: What is GitHub Marketplace?**
A: A store for integrations and automation tools.

**Q: What is GitHub Codespaces?**
A: A cloud-based dev environment to code directly in the browser.

**Q: Explain SSH vs HTTPS authentication.**
A: SSH uses keys for secure access; HTTPS uses username/password or tokens.

**Q: What are GitHub Secrets?**
A: Encrypted environment variables for CI/CD workflows.

**Q: What is a workflow in GitHub Actions?**
A: A YAML file defining automation tasks triggered by events.

**Q: Explain semantic versioning.**
A: Versioning format: MAJOR.MINOR.PATCH.

**Q: How do you revert a commit?**
A: Use 'git revert ' to create a new commit undoing changes.

**Q: What is cherry-picking?**
A: Copying a specific commit from one branch to another.

**Q: What is a submodule?**
A: A Git repository inside another repository.

**Q: Explain GitHub permissions.**
A: Defines access levels: read, triage, write, maintain, admin.

**Q: Explain branching strategies.**
A: Examples: Git Flow, GitHub Flow, Trunk-based development.

**Q: What is continuous integration?**
A: Frequent merging and automatic testing of code.

**Q: What is a draft pull request?**
A: A PR not ready for merge, used for early review.

**Q: What is CODEOWNERS?**
A: File that specifies owners responsible for reviewing changes.

**Q: How to squash commits?**
A: Use 'git rebase -i' to combine multiple commits.

**Q: What is a GitHub organization?**
A: A shared account to manage multiple repositories and teams.

**Q: How do you protect a branch?**
A: Enable branch protection rules like required reviews or checks.