**CI/CD**

1.What are the fundamental differences between DevOps & Agile?

DEVOPS

-> DevOps is a software development method which focuses on communication, integration, and collaboration among IT professionals to enables rapid deployment of products.

->DevOps central concept is to manage end-to-end engineering processes.

->DevOps focuses on constant testing and delivery.

->DevOps divides and spreads the skill set between the development and operation teams.

AGILE

->Agile methodology involves continuous iteration of development and testing in the SDLC process. This software development method emphasizes on iterative, incremental, and evolutionary development.

->Agile helps to manage complex projects

->Agile focuses on constant changes.

->Smaller team is the core of the agile.

2. What is the need for DevOps?

->Shorter development cycle and faster innovation.

->Reduced deployment failures, Rollbacks and Time to recover.

->Improved communication and collaboration.

->Reduced costs and It resources.

3. What are the advantages of DevOps?

->Continuous software delivery

->Faster resolution of problems

->Happier, more productive teams

->Greater professional development opportunities

->Faster delivery of features

->Improved communication and collaboration

4. Explain with a use case where DevOps can be used in industry/ real-life.

Company”X” is a peer-to-peer e-commerce website focused on consumer needs. X struggled with slow, painful site updates that frequently caused the site to go down. It affected sales for millions of X users who sold goods through an online marketplace and risked driving them to the competitor.

With the help of a new technical management team, X transitioned from its waterfall model, which produced four-hour full-site deployments twice weekly, to a more agile approach. Today, it has a fully automated deployment pipeline, and its continuous delivery practices have reportedly resulted in more than 50 deployments a day with fewer disruptions.

5. What are the success factors for Continuous Integration?

->Risk mitigation

->Confidence

->Team Communication

->Reduced overhead

->Consistency of Build Process

6. What are the differences between continuous integration, continuous delivery, and continuous deployment?

CI: CI is a development practice that requires developers to integrate code into a shared repository several times a day.

CD: In continuous delivery software can deployed to production at any time.

CD: In continuous deployment software automatically deployed to production at all the time.

7. What role does the Quality Assurance (QA) team play in DevOps?

In DevOps, QA quickly feeds fresh development code into the production environment with the collaboration of the DevOps team, who then provide the necessary tools and infrastructure to make it a process smooth, making sure all changes function as expected.

8. Describe an efficient workflow for continuous integration?

For continuous integration, there is a need to have a repository where in the code could be saved, retrieved and maintained. The repository must be good enough to provide the developers with a powerful version controlling system. Git is one of the version control systems (VCS) for tracking code changes and coordinating work on the code among multiple people. It is primarily used for source code management in software development, but it can be used to keep track of changes in any set of files.

-> Centralized workflow

->Feature branch work flow

->Git workflow

->Forking workflow

9. What are the best practices for DevOps implementation?

* Active Stakeholder Participation.
* Automated Testing.
* Integrated Configuration Management.
* Integrated Change Management.
* Continuous Integration.
* Integrated Deployment Planning.