DevOPS  
Q1.can you explain what git is and why it’s used in the software development?  
Ans1🡪Git is a distributed version control system that help developers track changes in their own code over time. It allows multiple people to work on the same project simultaneously without overwriting each other’s work. With git we can commit changes, view history and rollback to previous versions if needed.

Q2. What is Github and how it is different from Git?

Ans2🡪Github is a cloud based platform based on top of a Git that allows developers to host their Git repositories online. Github provided coolboration features like remote repo’s ,pull requests ,issue tracking and code reviews.

Q3. What is GitHub Actions and how would you use them in a project?

Ans3🡪 Github Actions is a CI/CD automation tool built into Github It lets you automate workflows directly in your repository using XAML files.

For eg. We can set up a workflow to automatically-

\*”Run tests whenever code is pushed”

\*”Build and deploy the application when changes are merged to the main branch”

\* “performs checks like linting or secure scanning”

.In a Node.js project I create a github/workflows/ci.yml file where I define steps such as installing dependencies(npm install) ,running tests(npm test) and building the project. This ensures that every new change is tested and scalable before being merged into production.

Q4. What is docker ?

Ans4🡪Docker is a containerization platform that allows developers to package an application aloung with all dependencies into a container. This ensures the application run’s consistently across different environments -whether on developer’s machine, stagging or production.

Egample: suppose I built full stack app Normally it might need Node.js ,MongoDB an ngnix But with docker , I can write a docker file for my Node.js backend and compose.yml file to run NodeJs + MongoDB Containers Together. This way any teammate or server can run the app with a single docker-compose up command.

Q5. Difference between Git pull and Git fetch?

Ans5🡪 .Git fetch ->download the latest changes from the remote but does not merge the changes into your local branch .You can review changes later.  
 .Git PULL->downloads and automatically merges the changes into your current branch.  
Q6. Difference between Git merge and Git Rebase?

Ans6🡪Git merge: combines changes from one branch into another by creating a new merge commit and history shows all the branches.

Git Rebase: Move your branch on top of other’s branch history making the commit history linear and cleaner.

Q7.what is Kuberneetes?

Ans7🡪Kubernetes (k8s) is container orchestration tool that helps manage and scale containers like docker in production. It automates tasks such as deploying ,scaling, load-balancing and selfHealing of applications.

Q8What is a POD in kubernetes and how it’s different from kubernetes?

Ans 8🡪 A POD is a smallest deployable unit in Kubernetes and a pod can run one or more containers that share the same network and storage. And also while docker gives us single container and While POD is a wrapper than can manage multiple containers like one unit.

Q9. What is deployement in Kubernetes?

Ans9🡪 A deployement in Kubernetes is a higher level object that manages pods. It ensures that the right no of pods are always running and make updates easier.

\*Handles rolling updates (updates pods one by one with zero downtime).

\* Allows rollback if something breaks.  
Q10. What is service in Kubernetes and why do we need it?

Ans10🡪A service in Kubernetes provides a stable way to connect to pods.Since pods are temporary(they can die and restart with a newIP). A service

Gives them a fixed IP and and a domain name.  
 Types of services🡪 .ClusterIP ,NodePort,LoadBalancer  
Q11. What’s difference between config map and a secret in kuberntes?

Ans 11🡪 configMap ->stores non-sensitive configuration data(like app settings and env variables).  
 .Secret -> stores sensitive data like passwords,API Keys,tokens and base64 encoded for security.  
  
Q12. Difference Between stateful set and deployement in Kubernetes?

Ans12🡪 .Deployement->manages stateless app. Pods can be replaced or scaled freely.  
 .StatefulSet-> manages stateful apps(like database) each pod has a stable indentity and storage.

Q13.What is selenium and why it is used?

Ans13🡪Selenium is a open-source tool for automating web browsers.It’s used for testing web applications across different browsers. And also supports multiple languages.  
 Q14. What is Playwright and how it is different from selenium?

Ans14🡪Playewright is a modern automation tool for modern web applications. I supports cross browser testing and headless mode.It can handle modern web apps better and has built-in waiting for elements,making tests more stable.  
Q15.difference between selenium webdriver and playwirght’ s page object?

Ans15🡪Selenium webDriver controls the browser using commands for navigating,clicking ,typing etc.  
 Playwright uses page objects ,which wrap multiple browser contexts and make parallel execution and element handling easier.  
 Q16. What is redis ?

Ans16🡪Redis is an in memory data store used as a cache,database or message brocker.  
 .Extremely fast as it keeps data in memory instead of disk.  
 Ex. Storing user session data in redis for quick success.  
 .we can maintain a caching api responses .so the app doesn’t hit the database every time.  
Q17.what is Kafka?

Ans17🡪Kafka is a distributed streaming platform used to send and process streams of data in real time.

.Think of it as a high-speed durable message pipeline that can handle millions of messages per second.  
 .Eg. A E-Commerce site tracks user clicks and purchases in real-time. And kafka streams this data to analytics service for instant dashboards ,or fraud detection.  
Q18.what is RabbitMQ?

Ans18🡪RabbitMQ is a message brocker used to send messages between applications asynchronously. It also ensures messages are realibly delievered using Queues.  
 Ex. When a user places an order /the app sends a message to RabbitMQ Queue and a seprate worker service reads the message and processes the order. And this keeps the frontend fast and the backend work asynchronously.  
Q19.what is prisma and why it’s used?

Ans19🡪 Prisma is a ORM(Object -Relational-Mapping) tool for node.js and typescript.  
 It helps developers interact with databases using the safe code by instead of writing raw SQL makes database operations faster,safer and easier to maintain.  
Q20What are the main parts of prisma?  
Ans20🡪 Prisma-Client->Auto generated Query builders for database operations.  
 Prisma-migrate->Helps create and manage database schema intergrations.  
 Prisma-Studio->GUI to explore and edit your database visually.  
Q21. Why choose Prisma over raw SQL?  
Ans21🡪Type-safe SQl queries prevent runtime error  
 .Easy database migrations.  
 .Cleaner and more maintainable code for large project.  
Q22.What is sanbox?

Ans22🡪Sandbox environment is a safe , isolated testing database where you can experiment without effecting production.  
 we can test queries, schema changes , or scripts on the sandbox without worrying about breaking your real app.  
Q23 Give a all in one egample of using all?

Ans23 🡪 . Developers writes code ->pushes it to Github -> via Git -> It triggers Github Action

.Github Actions runs tests->build docker container->deploy to Kubernetes

.Backend uses prisma to interact with the sandbox in development.

. Redis caches popular posts and sessions.

. RabbitMQ handles background tasks like sending emails or image processing.

. Kafka streams analytics data from user activity.  
 .App runs smoothly, Scales Automation and handles automatically.