What is Software Testing?	What is Manual Testing?
What is Automation Testing?	What are the three types of applications?
What is Retesting?	What is Regression Testing?
What are the main challenges in Manual Testing?	How do Automation Tools work?

Performing testing without using any tools is known as Manual Testing. Here a tester/person will do the testing directly.

Software testing is the process of finding defects in a software. The main goal is to release quality software to the customer/client.

1) Web Applications - Accessed through browsers (e.g., LinkedIn, Facebook) 2) Desktop Applications - Installed locally (e.g., MS Excel, Notepad) 3) Mobile Applications - Mobile apps from Play Store/App Store (e.g., WhatsApp)

Performing testing with the help of automation tools is known as Automation Testing. Tools execute the test scripts automatically.

Testing done in every cycle to verify that existing functionality is not broken due to new changes or bug fixes. It includes retesting failed cases and testing impacted areas.

Executing the same test case multiple times with different sets of data. Example: Testing login with valid/invalid username and password combinations repeatedly.

1) Convert manual test case to test script (automation format) 2) Write instructions in a programming language the tool understands 3) Tool reads instructions and performs actions on the application automatically

1) Retesting - Time consuming and requires lot of effort 2) Regression Testing - Must test existing functionality in every build, which is repetitive and time-consuming

Why is Programming Language required for Automation?

How does Automation overcome Retesting challenges?

How does Automation overcome Regression Testing challenges?

What is Selenium?

What type of applications does Selenium support?

What are the components of Selenium?

What are the Advantages of Selenium? (5 main points)

What are the Limitations/Disadvantages of Selenium? (4 points)

Test data is maintained in external files (Excel, database). The automation script reads each input automatically and repeats the same steps, saving time and effort.

Tools can only understand specific programming languages. To provide instructions to the tool, you must write them in a language the tool supports (Java, Python, JavaScript, etc.).

Selenium is a web-based automation tool/library (collection of components). It was originally developed by Jason Huggins in 2004 at ThoughtWorks Company.

Passed test cases are automated once. In subsequent cycles, these automated tests run automatically to verify existing functionality isn't broken, reducing time and effort.

1) Selenium IDE - Recording and playback 2) Selenium WebDriver - Main automation component 3) Selenium Grid - Parallel execution (Previously had RC - Remote Control, now deprecated)

Selenium supports ONLY web-based applications that are accessed through browsers. It does NOT support desktop or mobile applications.

1) Cannot support Windows-based applications (workaround: AutoIT, Sikuli, Robot API) 2) Reporting not supported (workaround: TestNG, Extent Reports) 3) Cannot support Excel files (workaround: Apache POI) 4) Graphs and CAPTCHAs not supported (not recommended to automate)

1) Open source tool & free 2) Supports multiple operating systems (Windows, Mac, Linux) 3) Supports multiple browsers (Chrome, Firefox, Edge, Safari, Opera) 4) Supports multiple languages (Java, Python, C#, Ruby, JavaScript) 5) Can integrate third-party tools

What is Cross-Browser Testing?	What is Apache POI?
What is TestNG?	What are Selenium versions and their components?
Why can't Selenium automate CAPTCHAs?	Why can't Selenium automate graphs/charts?
What programming languages does Selenium support?	What is a Test Case?

Apache POI is a third-party library that can be integrated with Selenium to read/write Excel files. Used for data-driven testing where test data is stored in Excel sheets.

Executing test cases on multiple browsers (Chrome, Firefox, Edge, Safari) to ensure the application works consistently across different browsers. This is mainly done to catch UI issues.

Selenium 1.x: IDE(Firefox), RC, Grid Selenium 2.x: IDE(Firefox), WebDriver, Grid Selenium 3.x: IDE(Firefox, Chrome), WebDriver, Grid Selenium 4.x: IDE(Firefox, Chrome, Edge), WebDriver, Grid Latest: Selenium 4.10+

TestNG is a testing framework that can be integrated with Selenium to generate test reports, organize test cases, and provide additional testing features like assertions and annotations.

Graphs are dynamic in nature - they change based on data. Since they keep changing constantly, it's difficult and not practical to automate them.

CAPTCHAs are designed for security purposes. If automation tools could break CAPTCHAs, it would violate security policies. Therefore, CAPTCHA automation is not supported and not recommended.

A test case is a step-by-step action to be performed on an application to test it. Example: Launch application → Enter username → Enter password → Click submit → Verify homepage is displayed.

1) Java 2) Python 3) C# 4) Ruby 5) JavaScript You need to know at least ONE language to use Selenium. You only use one language per project, not multiple.

What is a Test Script?

What is Application Under Test (AUT)?

What is Data-Driven Testing?

What tools are used for Desktop Application automation?

What tools are used for Mobile Application testing?

What is Selenium IDE?

What is Selenium WebDriver?

What is Selenium Grid?

Application Under Test (AUT) is the application or software that you are going to test, whether manually or through automation.

A test script is the automation format of a manual test case. It's written in a programming language that the automation tool can understand and execute.

1) AutoIT 2) Sikuli 3) Robot API 4) UFT (Unified Functional Testing) 5) WinAppDriver These can be integrated with Selenium for scenarios like file upload/download.

Testing where the same test steps are executed with multiple sets of data. Test data is stored in external sources (Excel, database, files) and the automation script reads each input automatically.

Selenium IDE is a browser plugin/extension used for recording and playback. It records user actions and generates basic automation code. Available for Firefox, Chrome, and Edge browsers.

1) Appium (most popular) 2) Espresso (Android) 3) XCUITest (iOS) Selenium does NOT support mobile app testing directly.

Selenium Grid is used for parallel test execution. It allows running tests on multiple machines, browsers, and operating systems simultaneously, reducing overall execution time.

Selenium WebDriver is the main component used for writing automation test scripts. It provides APIs to interact with web elements and control browsers programmatically.

What is the Software Testing Life Cycle (STLC)?

What happens in a typical testing cycle?

Why is Java commonly used with Selenium?

Can you use multiple programming languages in one Selenium project?

What is the difference be-tween Tool and Library?

What operating systems does Selenium support?

What browsers does Selenium support?

Build 1: Execute test cases → Report bugs Build 2: Test new features + verify bug fixes + regression testing Build 3: Continue pattern until all features are complete Each build contains new features and/or bug fixes

STLC is the process where developers add features in multiple builds/cycles, and testers test those features in corresponding cycles. Testing continues until all features are developed and tested.

No, you should use only ONE programming language per project. While Selenium supports multiple languages, mixing them in a single project is not recommended and creates maintenance issues.

Java is widely used with Selenium because: 1) Large community support 2) Extensive documentation 3) Platform independent 4) Rich ecosystem of testing frameworks (TestNG, JUnit) 5) Many companies use Java for automation

1) Windows 2) macOS 3) Linux/Unix Selenium can be installed and used on all major operating systems.

Tool: A single component that can be downloaded, installed, and used directly Library: A collection of multiple components/modules Selenium is technically a library (collection of IDE, WebDriver, Grid) but commonly called a tool.

1) Chrome 2) Firefox 3) Edge 4) Safari 5) Opera Note: Internet Explorer is deprecated and no longer recommended.