# GURU 23Q : <https://www.guru99.com/jmeter-interview-questions.html>

**1) Explain what is JMeter?**

JMeter is a[Java](https://www.guru99.com/java-tutorial.html)tool, which is used for performance [Load Testing](https://www.guru99.com/load-testing-tutorial.html).

**2) Explain how JMeter works?**

JMeter acts like a group of users sending requests to a target server. It collects response from the target server and other statistics which show the performance of the application or server via graphs or tables.

**3) Explain where you can use functions and variables?**

Variables and functions can be written into any field of any test component

**4) Mention what are regular expressions in JMeter?**

Based on the pattern, a regular expression is used to search and manipulate text. JMeter is useful in interpreting forms of regular expression or patterns being used throughout a JMeter test plan.uestions and Ans

**5) Explain what is Samplers and Thread groups?**

* Thread group: For any test plan, JMeter is the beginning part of thread group elements. It is an important element of JMeter, where you can set a number of users and time to load all the users given in the thread group
* Samplers: Sampler generates one or more sample results; these sample results have many attributes like elapsed time, data size, etc. Samplers allow JMeter to send specific types of requests to the server, through samplers, thread group decides which type of request it needs to make. Some of the useful samplers are HTTP request, FTP request, JDBC request and so on.

**6) Whether the test plans built using JMeter are OS dependent?**

Usually,[Test Plan](https://www.guru99.com/what-everybody-ought-to-know-about-test-planing.html)are saved in their XML format, so there is nothing to do with any particular O.S. It can be run on any OS where JMeter can run.

**7) Mention what are the types of a processor in JMeter?**

The types of a processor in JMeter are

* Pre-processor
* Post processor

**8) Explain what are Pre-processor Elements? List some of the pre-processor elements?**

A pre-processor is something that will happen before the sampler executes. To configure the sample request prior to its execution or to update variables that are not extracted from response text pre-processor elements are used.

Some of the pre-processor elements are

* HTTP URL re-writing modifier
* HTTP user parameter modifier
* HTML link parser
* BeanShell PreProcessor

**9) Mention the execution order of Test Elements?**

The test plans elements execution order is

* Configuration elements
* Pre-processors
* Timers
* Samplers
* Post-processors
* Assertions
* Listeners

**10) What does “contain” and “matches” indicates in the regular expression?**

In the regular expression, contains indicates that the regular expression matched at least some part of the target. While matches mean the regular expression matched the whole target. So, ‘alphabet’ is “matched” by ‘al.\*t.’

**11) Explain what is the configuration elements?**

A configuration element works parallel with a Sampler. To set up defaults and variables for later use by samplers configuration elements can be used. At the start of the scope, these elements are processed before any samplers in the same scope.

**12) Explain what is a timer in JMeter and what are the types of it?**

A JMeter thread by default will send requests continuously without any pause. To get a pause between the request, Timers are used. Some of the Timers used are Constant Timer, Gaussian Random Timer, Synchronizing Timer, Uniform Random Timer and so on.

**13) Explain what is Test Fragment?**

Test fragment is also a type of element like Thread Group element. The only difference is test fragment is not implemented unless it is referenced by either a Module controller or an Include controller.

**14) Explain what is Assertion in JMeter? What are the types of assertion?**

Assertion helps to verify that your server under test returns the expected results

Some commonly used Assertion in JMeter are

* Response Assertion
* Duration Assertion
* Size Assertion
* XML Assertion
* HTML Assertion

**15) Explain how you can reduce the resource requirement in JMeter?**

To reduce the resource requirements in JMeter

* Use non-GUI mode: jmeter –n –t test.jmx –l test.jtl
* During the load, a test doesn’t use “view results tree” or “view results in table” listeners, use them only during the scripting phase
* Don’t use functional mode
* Instead of using lots of similar samplers, use the same sampler in a loop and use the variable to vary the sample

**16) Explain how you can perform spike testing in JMeter?**

By synchronizing, timer JMeter spike[Testing](https://www.guru99.com/software-testing.html)can be achieved. Synchronizing timer blocks thread until a specific amount of threads has been blocked and then release them all together thus creating large instantaneous load.

**17) Explain how you can capture the script of the authentication window in JMeter?**

Normally, you can capture script by recording.

* First, you have to Threadgroup in Testplan and then make HTTPProxyServer in Workbench
* After that, set port number in the Global Setting box (e.g., 8911) and modify your connection setting in IE as localhost in address 8911 as in port Then you can start http proxy server in JMeter and run your application for login

**18) List out few JMeter Listeners?**

Some of the JMeter Listeners are

* Spline Visualizer
* Aggregate Report
* View Result Tree
* View Result in Table
* Monitor Results
* Distribution Graph
* BeanShell Listener
* Summary Report and so on

**19) What is distributed load testing? How can it be achieved?**

Distributed load testing is the process through which numerous systems can be used for simulating a load of a large number of users. By using the master-slave configuration, JMeter can do distribute load testing.

**20) In JMeter is it necessary to call embedded resources explicitly?**

You can eliminate all embedded resources from being explicitly called. Requests have a checkbox at the bottom that says “retrieve embedded resources.” It would grab all CSS, JPG, etc. It is a brilliant way to find resources and broken link in a web App.

**21) Explain what is the role of Timer in JMeter?**

With the help of a timer, JMeter can delay the time between each request, which a thread makes. It can solve the overload problem of the server.

**22) Explain what is Post-processor?**

To perform any action after making a request, Post-processor is used. For example, if JMeter sends an HTTP request to the web server, and if you want JMeter to stop sending the request if the web server shows an error, then you will use post-processor to perform this action.

**23) What are the benefits that JMeter offers for performance testing?**

JMeter offers benefits on [Performance Testing](https://www.guru99.com/performance-testing.html) like

* It can be used to test performance for both, static resources as well as dynamic resources
* It can handle a maximum number of concurrent users then your website can handle
* It provides the graphical analyses of performance reports

# STH 28Q: <https://www.softwaretestinghelp.com/jmeter-interview-questions/>

**Q #1) Explain the architecture of JMeter.**

**Answer:** Jmeter is a Java-based open-source application that is basically designed for the purpose of Load Testing. It supports all major protocols that are supported in Load Runner. Unlike any browser, JMeter works on levels of protocols and does not execute JavaScript present in HTML web pages.

**Q #2) Does JMeter simulate actual browser behavior?**

**Answer:**No, JMeter does not support the actual browser behavior. It does not render the HTML webpages as the normal browser does. The response can be viewed in HTML format but the actual timings are not present in the generated samples.

**Q #3) What is Distributed testing?**

**Answer:** Distributed Testing means using multiple machines for load testing in which one of the machines can be made master and others can be kept as a slave. It is very important to note that all the machines should be on the  same network and should have the same version of Java and JMeter

**Q #4) What is the use of Regular Expression in JMeter?**

**Answer:** Regular Expression is used for extracting some values dynamically from the responses.These values can be used in the subsequent request or can be saved for reporting purposes. Regular Expression is used in both Pre-Processors as well as Post Processors.

**Q #5) What are the types of processors in JMeter?**

**Answer:** Basically there are two types of processors in JMeter namely Pre-Processor and Post Processor.

Pre-Processors execute before the main sampler and can change the scope of the sampler whereas Post Processors execute after the main sampler and are applicable to all samplers in the same scope of Test Plan. They can be used to extract some fields from the server response and store them in variables.

**Q #6) What are the different ways of Data Parameterization in JMeter?**

**Answer:** Data Parametrization makes the scripts reusable where the values is not required to be hardcoded for the same request with different parameters.

**Below is the data parametrization that is supported in JMeter:**

* CSV Data Set Config
* User-Defined Variables.

**Q #7) What are the maximum recommended threads on a single system?**

**Answer:** It depends on the hardware configuration of your system which includes a processor, JVM, allocated memory -Xmx, etc.

Other factors that impact thread count are the number of components in your test plan i.e. the number of config elements or processors and it also depends on whether you are using GUI/Non-GUI Mode.

**Q #8) Explain the difference between Gaussian and Poisson Timers.**

**Answer:** Both Gaussian and Poisson Timers work on a mathematical formula with some constant delay and additional offset. Difference between the two lies in the fact that how the lambda value is calculated in the case of Poisson timer and how deviation is calculated in the case of Gaussian Timer.

**Q #9) What are the major differences between JMeter and Load Runner.**

**Answer:** JMeter is considered as the major competitor of Load Runner in the industry. **Enlisted are some of the major differences:**

| **Load Runner** | **Jmeter** |
| --- | --- |
| Licensed Software | Open Source tool. |
| Developed by Mercury | Developed by Apache. |
| UI is very impressive | It lacks in UI |
| It has more technical capabilities. | Less technically sound as compared to Load Runner. |
| Supports SAP, Siebel and Peoplesoft. | Doesn’t support SAP and Siebel |

**Q #10) What is the use of co-relation in JMeter?**

**Answer:** Co-relation is a process of extracting the values from the server response and storing it in a variable to be used in any other request which is to follow.

**For Example,** for testing any login functionality if you have to use the session ID/cookie ID, you can extract the values from the response of GET Request of the login page and then dynamically use the same while making POST request for a login.

**Q #11) What are the different types of listeners?**

**Answer:**Listeners are used for storing the execution results of load testing in different forms be it in a table, graph, tree or in any other presentable format so that it can be presented to the client. There are different type of inbuild listeners in JMeter and many others can be imported into it by using plugins as per the requirement.

**Some of the inbuild listeners are:**

* View results in Table
* View results in Tree
* Graph results
* Aggregate graph
* Aggregate report
* Assertion results
* Response time graph

**Q #12) Explain the flow of the Test Script Recorder.**

**Answer:** HTTP(s) Test Script Recorder is used to record all the Http(s) requests going to the server from your application. Some configurations require to be done in JMeter in order to make it work.

**Steps followed to record https traffic are:**

* Add HTTP(s) Test script recorder to WorkBench.
* Enter the port number to start your proxy server.
* Choose the target either as “Workbench” or add a Recording Controller in your test plan and select the same target for storing all the recordings under it.
* Start the proxy server.
* Configure your browser with manual proxy settings pointing to the same port number used in the test script recorder.

**Q #13) Can JMeter record actions from mobile? If yes, how?**

**Answer:** Yes, JMeter can record HTTP or Https request going to the server from your mobile application also. It is required that mobile and JMeter are on the same network.

**Below is the configuration required:**

* Configure your proxy server in JMeter to run at a specified port.
* Set up the proxy on your mobile wifi settings and enter the same port number that is used in the recorder.
* Install the Root CA certificate on your mobile.
* Hit server requests from your mobile and observe it getting captured by the specified controller.

**Q #14) How to do master-slave configuration in JMeter?**

**Answer:** Master-slave configuration is a part of distributed testing in which more than one machine is used to perform load testing of the server under test.

It is very important that all machines are on the same network and all have the same version of JMeter. In distributed testing, one machine considered as the master and the others are kept as slaves by doing some configurations.

**The process is specified below:**

* On the master machine, edit the JMeter.properties file and add the IP addresses of slave machines against the remote\_host field in the file.
* Save the file and open the JMeter again.
* Now, from the RUN menu in JMeter, select Remote Start and choose the IP of the machine to be invoked.
* Choose RUN menu and select Remote Start all to start all the slave machines for your testing.

**Q #15) What are the JMeter supported protocols?**

**Answer:** JMeter**supports various standard protocols like:**

* HTTP/HTTPs
* SOAP
* LDAP
* FTP
* SMTP
* TCP

**Q #16) Explain the syntax of JMeter variables and functions.**

**Answer:** Just as in any other programming language, variables and functions are used in JMeter also in order to make the scripts reusable.

**Syntax of Variable** – ${var}

There are many inbuilt functions that are available in JMeter to perform various actions. Function string can be generated from the Function Dialogue Box itself.

**For Example,** if you want to get the machine IP stored in a machineIP variable, you can use the string ${\_\_machineIP(machineIP)}.

**Q #17) Why is it recommended to run JMeter in GUI mode?**

**Answer:** JMeter tests can be run both GUI as well as Non-GUI Mode. It is highly recommended to run the load test in Non-GUI mode because the AWT event thread can kill the tests in case of high load scenarios.

**The various Non-GUI mode supported with JMeter are:**

* Command-line
* ANT plugin
* MAVEN plugin
* Jenkins

**Q #18) Is it possible to run selenium scripts in JMeter? If yes, how?**

**Answer:**Yes, it is possible to run selenium scripts in JMeter to get some ideas on their performance.

There are two ways of doing it. Either you can use JUnit libraries to build selenium scripts and save as Jars and copy the same in the JMeter directory. And then add JUnit sampler to your test plan and import the Jar file.

Otherwise, the Webdriver sampler plugin can be added in the JMeter ext folder. Restart the JMeter. Write your selenium code in the Webdriver sampler and then execute it to see the performance.

**Q #19) How do you manage sessions and cookies in JMeter?**

**Answer:** Sessions and cookies can be managed in JMeter by using config elements such as HTTP Cache Manager which provides an option to clear the cookies in every iteration and also allows to add user-defined cookies.

HTTP Cache manager helps you in clearing cache after each iteration as per your requirement in the load tests and also limits the number of elements that can be stored in the cache. Both of these config elements can be attached to the HTTP sampler.

**Q #20) What are the important steps for testing JDBC request?**

**Answer:** JDBC requests are used to establish a connection with the databases and then measure the response time of the queries.

**Important steps for testing JDBC requests are:**

* **Setting up Config Element,** JDBC Connection configuration in which Database URL and JDBC Driver Class needs to be added as per the database which is being used. Also, add the variable name for this connection configuration so as to use it in the sampler.
* Add JDBC Request. Add the same variable name added above and write your queries to the test.

**Recommended reading =>>**[**JDBC Interview questions with answers**](https://www.softwaretestinghelp.com/jdbc-interview-questions/)

**Q #21) What is BeanShell scripting?**

**Answer:** BeanShell is a lightweight Java scripting that is used in JMeter to perform some complex task. BeanShell sampler can perform various functions with the use of coding. You can print the thread number, get the current sampler executed, fetch the cookies, etc.

**Q #22) Can JMeter measure the performance of a complete application? For Example, you have multiple screens in your mobile app. Can JMeter measure the time taken to flip the screens?**

**Answer:** No, JMeter does not measure the transition time between the screens. It can only measure the server actions not the UI interactions.

**Q #23) What is a Root CA certificate?**

**Answer:** HTTPS connection requires a certificate to authenticate the connections which get established when the browser hits the webserver. JMeter generates it temporarily to intercept the SSL traffic in order to record the actions. For recording actions via mobile, you need to have this certificate on your mobile to record the actions.

**Q #24) Which factors decide the maximum threads that one should generate per system?**

**Answer:** It depends on the hardware of the system.

**For Example,** on a 2-3 GHz CPU, 400-600 threads can be generated. It also depends on the components in your test plan. More the processors and XML parsing elements, the more the CPU load and hence fewer threads. For high load, it is recommended to use multiple machines for load testing.

**Q #25) What is a Workbench and why is it required?**

**Answer:** Workbench is a storage area for adding some components which can be added to the test plan if required.

Components of workbench do not get saved with the test plan automatically. They have to be saved separately as test fragments. A most important part of the Workbench is HTTP(s) Test script recorder which is highly useful in recording the https request and later load can be applied to+9859 them to measure the response time.

**Q #26) What is Tidy Parsing?**

**Answer:**Tidy Parsing is a type of parsing that is used in Xpath extractor. If the response is in pure XML then tidy parsing is not required whereas, in the case of XHTML, it is mandatory to check the tidy parsing option in order to fetch the correct results.

**Q #27) What are the important plugins that are supported in JMeter?**

**Answer:** JMeter supports different types of plugins which are helpful in generating high-quality results.

**Below are the major plugins that are supported:**

* Thread group plugin – Stepping thread group plugin.
* Samplers plugins like Webdriver.
* Listeners plugins.

**Q #28) What are the types of the controller in JMeter?**

**Answer:** Controllers are used in JMeter to control the flow of execution of requests.

**Below are the controllers that are used in JMeter:**

* Recording controller
* IF controller
* While controller
* Transaction controller
* Loop controller
* Simple controller
* Module controller

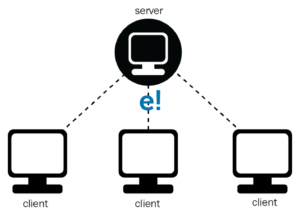
# Edureka 30Q: https://www.edureka.co/blog/interview-questions/jmeter-interview-questions/

### ****Q1. What is JMeter?****



JMeter is one of the Java tools which is used to perform load testing client/server applications. [Apache JMeter](https://www.edureka.co/blog/jmeter-tutorial/) is open source software, a 100% pure Java desktop application designed to load test functional behaviour and measure performance of the application.

### ****Q2. How does JMeter work?****



JMeter acts like a group of users sending requests to a target server. It collects response from target server and other statistics which show the performance of the application or server via graphs or tables.

### ****Q3. What are Regular Expressions in JMeter?****

Regular Expressions are used to search and manipulate text. JMeter is used for interpreting forms of regular expression or patterns being used throughout a JMeter test plan.

### ****Q4. What are the Protocols supported by JMeter?****

The protocols supported by JMeter are:

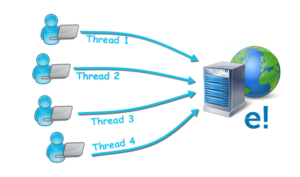
* Web: HTTP, HTTPS sites ‘web 1.0’ web 2.0
* Web Services: SOAP / XML-RPC
* Database via JDBC drivers
* Directory: LDAP
* Messaging Oriented service via JMS
* Service: POP3, IMAP, SMTP
* FTP Service

### ****Q5. What is a Test Plan in JMeter?****

A Test Plan provides a layout of the web application as well as the client-server application. It can be viewed as a container for running tests. A complete test plan will consist of one or more elements such as thread groups, logic controllers, sample-generating controllers, listeners, timers, assertions, and configuration elements. A test plan must have at least one thread group.

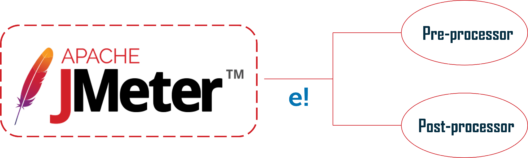
### ****Q6. What are Samplers & Thread Groups?****

**Samplers** – Sampler generates one or more sample results. These sample results have many attributes like elapsed time, data size, etc. It allows JMeter to send specific types of requests to the server, through samplers, thread group decides which type of request it need to make. Some of the useful samplers are HTTP request, FTP request, JDBC request etc.

**Thread Groups** – JMeter is the beginning part of thread group elements. It is an important element of JMeter, where you can set number of users and time to load all the users given in the thread group.

### ****Q7. What are the types of processor in JMeter?****

The two types of JMeter are:



* Pre-processor
* Post processor

### ****Q8. What are Pre-processor elements? List some of the elements.****

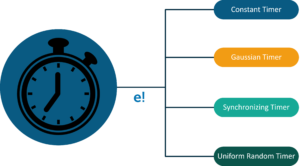
A pre-processor is something that will happen before sampler executes. To configure the sample request prior to its execution or to update variables that are not extracted from response text pre-processor elements are used.

Some of the pre-processor **elements** include:

* HTTP URL re-writing modifier
* HTTP user parameter modifier
* HTML link parser
* BeanShell PreProcessor

### ****Q9. What is a Timer in JMeter? What are the types of it?****

A JMeter thread by default will send requests continuously without any pause. Timers are used to get a pause between the request.



The different types of Timer in JMeter are:

* **Constant Timer** – This element delays each request in a Thread Group for the same amount of time.
* **Gaussian Timer** – This element is used to delay each user request for a random period of time.
* **Synchronizing Timer** – This element is used to release number of threads at given point.
* **Uniform Random Timer** – This element is used to delay each request for a random period of time.

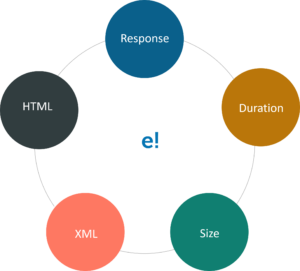
### ****Q10. What is Test Fragment?****

Test fragment is a type of element like Thread Group element. The only difference is test fragment is not implemented unless it is referenced by either a Module controller or an Include controller.

### ****Q11. What is Assertion in JMeter? List the types of Assertion.****

**Assertion** helps to verify that your server under test returns the expected results.

The Types of Assertion include:



* **Response Assertion** – It facilitates the user by comparing the server response against a string pattern to check that the result is as expected.
* **Duration Assertion** – You may need to test the response from the server reaches in user-defined time. If it takes longer than the defined time, server response fails.
* **Size Assertion** – It is to test that each response coming from server holds the expected number of bytes. It facilitates the user to specify the size.
* **XML Assertion**– It verifies that the response coming from the server holds the data in a correct XML format.
* **HTML Assertion** – It is helpful for checking the syntax of the response data.

### ****Q12. What is the execution order of Test Elements?****

The execution order of Test Elements is in the following sequence:

* Configuration elements
* Pre-Processors
* Timers
* Sampler
* Post-Processors (unless SampleResult is null)
* Assertions (unless SampleResult is null)
* Listeners (unless SampleResult is null)

### ****Q13. What are Configuration Elements?****

Configuration Elements help you to create defaults and variables to be used by Samplers. They are also used to add or modify requests made by Samplers. These elements are executed at the start of the scope of which they are part. Therefore, a Configuration Element is accessed only from inside the branch where it is placed.

### ****Q14. How to reduce the resource requirement in JMeter?****

To reduce the resource requirements in JMeter:

* Use [non-GUI](https://www.edureka.co/blog/load-testing-using-jmeter/) mode.
* During the load, test doesn’t use “view results tree” or “view results in table” listeners. It is used only during scripting phase.
* Don’t use functional mode.
* Do not use similar samplers. Instead, use the same sampler in loop and use variable to vary the sample.

### ****Q15.****How do you ensure re-usability in your JMeter scripts?

You can ensure re-usability in the following ways:

* Using config elements like “**CSV Data Set Config**“, “**User Defined Variables**“, etc for greater data reuse.
* Modularizing shared tasks and invoking them via a “**Module Controller**“.
* Writing your own **BeanShell** functions, and reusing them.

### ****Q16. How to perform Spike Testing in JMeter?****

By synchronizing, timer JMeter spike testing can be achieved. Synchronizing timer, blocks thread until a specific amount of threads has been blocked and then release them all together thus creating large instantaneous load.

### ****Q17. Mention some of the JMeter Listeners.****

Some of the JMeter Listeners are**:**

* Spline Visualizer
* Aggregate Report
* View Result Tree
* View Result in Table
* Monitor Results
* Distribution Graph
* BeanShell Listener
* Summary Report

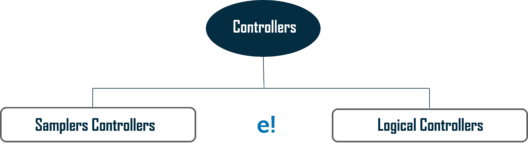
### ****Q18. How to capture the script of the Authentication Window in JMeter?****

You can capture [script](https://www.edureka.co/blog/jmeter-script-recording/) by recording in the following manner:

* First you have to Threadgroup in Testplan and then make HTTPProxyServer in Workbench.
* Next, set port number in Global Setting box and modify your connection setting in IE as local host in address.
* Then you can start http proxy server in JMeter and run your application for login.

### ****Q19. What are the types of Controllers in JMeter?****

The two types of Controllers in JMeter are:



* **Samplers Controllers** – Samplers allow JMeter to send specific types of requests to a server. They simulate a user’s request for a page from the target server.
* **Logical Controllers** – Logical Controllers let you control order of processing of Samplers in a Thread. It can change the order of request coming from any of their child elements.

### ****Q20. What are Pre-processor & Post-processor Elements?****

**Pre-processor** – A Pre-Processor is something that will happen before a sampler executes. They are often used to modify the settings of a Sample Request just before it runs.

**Post-processor** – A Post-Processor executes after a sampler finishes its execution. This element is most often used to process the response data.

### ****Q21. What are the uses of Monitor Test?****

Some of the uses of Monitor Test are:

* Monitors are useful for [stress testing](https://www.edureka.co/blog/stress-testing-using-jmeter/) and system management.
* Used with stress testing, the monitor provides additional information about server performance.
* Monitors make it easier to see the relationship between server performance and response time on the client side.
* As a system administration tool, the monitor provides an easy way to monitor multiple servers from one console.

### ****Q22. What are the benefits provided by JMeter for Performance Testing?****

Some of the benefits provided by JMeter for [Performance Testing](https://www.edureka.co/blog/performance-testing-tutorial/) are:

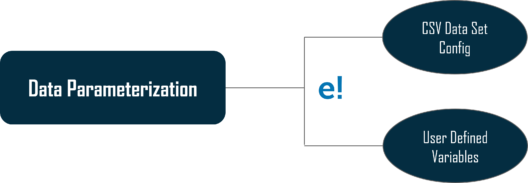
* It can be used to test performance for both static resources and dynamic resources.
* JMeter can handle a maximum number of concurrent users then your website can handle.
* It provides graphical analyses of performance reports.

### ****Q23. What is Distributed Load Testing & how to achieve it?****

****

**Distributed**[**load testing**](https://www.edureka.co/blog/load-testing-using-jmeter/) is the process through which numerous systems can be used for simulating a load of a large number of users. JMeter can do distribute load testing with the help of master-slave configuration.

### ****Q24. What are the different ways of Data Parameterization in JMeter?****

****

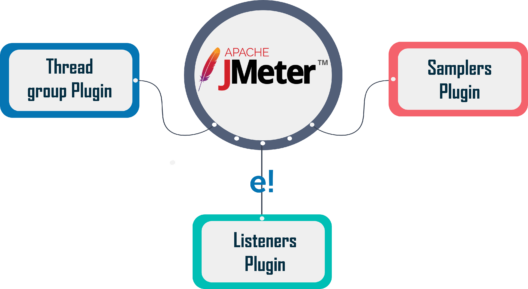
**Data Parameterization** makes the scripts reusable where the values need not be hardcoded for the same request with different parameters.

### ****Q25. What are the differences between****[JMeter & LoadRunner](https://www.edureka.co/blog/jmeter-vs-loadrunner/)****?****

|  |  |
| --- | --- |
| **JMeter** | **LoadRunner** |
| * Open Source Tool * Developed by Apache * It lacks in UI * Less Technically Sound * Doesn’t support SAP & Siebel | * Licensed Software * Developed by Mercury * UI is very impressive * It has more technical capabilities * Supports SAP, Siebel & Peoplesoft |

### ****Q26. What are the important plugins supported in JMeter?****

The important [plugins](https://www.edureka.co/blog/jmeter-plugins/) supported in JMeter are:



* Thread group Plugin
* Listeners Plugin
* Samplers Plugin

### ****Q27. Mention the differences between JMeter and SoapUI.****

|  |  |
| --- | --- |
| **JMeter** | **SoapUI** |
| * It is used for load and performance testing HTTP, JDBC, JMS, Web Service(SOAP), etc. * It supports distributed load testing * JMeter Kit and Load Generator plugins are needed for IDE | * It is specific for web services and has a more user-friendly IDE * It does not support distributed load testing * For most IDE, it has plugin support |

### ****Q28. What is Workbench?****

**Workbench** is a storage area for adding some components which can be added to test plan if required. Components of workbench do not get saved with the test plan automatically. They have to be saved separately as test fragments.

### ****Q29. Is it necessary to call embedded resources explicitly in JMeter?****

You can eliminate all embedded resources from being explicitly called. Requests have a checkbox at the bottom named as “retrieve embedded resources.” It would grab all CSS, JPG, etc. It is a brilliant way to find resources and broken link in a web App.

### ****Q30. What does “Contains” and “Matches” indicate in the Regular Expression?****

In the regular expression, **Contains** indicates that the regular expression matched at least some part of the target. While **Matches** means the regular expression matched the whole target. So, ‘alphabet’ is “matched” by ‘al.\*t.’

# MindMajix 31Q: <https://mindmajix.com/jmeter-interview-questions>

### 1) JMeter Vs Loadrunner

|  |  |
| --- | --- |
| **Apache Jmeter** | **HP Loadrunner** |
| Available for FREE | Expensive(Editions Available) |
| Licenses per installation | Licenses per virtual user |
| Can generate unlimited load | Limited load generation |
| Less proficient implementation | High-end development and complex to implement |
| UI is not up to the mark | Impressive UI |
| Supports Linux, MS, iOS, and Web-Based | Supports MS, iOS, and Web-Based |

### 2) Name the common techniques for performance testing?

There are five testing techniques that are common in the present scenario. They are

1. Spike Testing
2. Load Testing
3. Volume Testing
4. Endurance testing
5. Stress testing

These techniques measure the behavior of applications, their working conditions, handle apps with large records, and ensure functionality in case the overall number of users increases rapidly.

### 3) Explain Performance Testing?

The process of evaluating the performance of applications under greater load is known as Performance Testing. Basically, it’s nonfunctional testing and is generally done prior to categorizing the app on production. Actually, this ensures that the app will work fine under all the circumstances and don’t face issues like crashing during the real load. Performance monitoring is a very essential task.

|  |
| --- |
| ***Related Article: Learn More About***[***What is Performance Testing***](https://mindmajix.com/performance-testing-tutorial#What%20is%20Performance%20Testing?)***?*** |

### 4) Performance Testing needs a lot of activities to be performed. Name a few?

There are certain activities that are generally performed during this task and they are:

1. Testing tool selection
2. Performance test execution
3. Performance test planning
4. Analysis of test requirements
5. Analysis of test results
6. Script implementation

These activities are pretty common and can simply be performed.

### What do you mean by the term Jmeter?

It is basically a Java-based tool that is meant to test the performance of apps. Its open-source nature makes it simply the best for this task. A number of testing related to the performance of the apps can simply be handled with this tool. It really doesn’t matter whether it's web services or web-based apps. Moreover, it is capable to handle databases as well as FTP servers.

## Jmeter Interview Questions for Freshers

### 6) How requests are sent to the server in JMeter?

Basically, this is done with the help of Samplers. There are several samplers that are present in the JMeter and a few of them that are used commonly are:

1. Junit request
2. JDBC request
3. HTTP request

### 7) What do you know about JMeter features?

Extensibility, portability as well as robustness are some of its key features. It is a Java-based approach, and thus it supports all applications based on the same. It is possible for the users to have a final outcome in graphical or tabular form. Test scripts can be created very fast and this is because of the playback feature that JMeter is equipped with. Also, a user needs not to worry about the protocols that can be tested through this tool.

### 8) Explain the Process of Parameterization?

Basically, it is a very simple process that parameterizes the different types of inputs. This is helpful in using the distinct values for the users.

[](https://bit.ly/3if9dmk)

### 9) What do you know about the correlation?

It is basically a process of enticing the data from the previous calls and then sending it to consecutive requests in the form of parameters. It is very helpful in making the scripting easy and the good this is it cut a lot of complexity from the process of handling sessions.

### 10) Tell something about configuration elements?

Customizing the requests that often come from samplers is an important task in JMeter. The same is performed with the help of configuration elements. They can also be used when it comes to integrating the sampler requests with the data obtained from the CSV file.

### 11) What exactly do you know about a Workbench in Jmeter?

Many times while handling the tasks in Jmeter, the need for storing the test elements is felt. Workbench stores them all on a temporary basis. In addition to the testing elements, there are certain nontest elements that are also present in it. There is a browser in this tool that helps in configuring these elements simply. Keeping anything on the Workbench doesn’t actually mean it is stored in the memory permanently.

### 12) Name an element in the JMeter that is powerful in representing a group of virtual users that are responsible for performing different operations.

The name of this element is Thread Group

### 13) Explain the Ramp-up period?

When it comes to testing the loading of an app, only a few users are considered then all for effectively studying the behavior of the app. This also derives a lot of useful information to know the overall performance of the app. Of course, it takes some time in making all the users in the running state. This time period is generally called the Ramp uptime. It is different from different apps depending on the overall number of users, data, and several other factors.

### 14) What are the benefits of using JMeter?

It is a very reliable told that always makes sure of error-free results. Its compatibility with all the apps makes it the best in performing its task. JMeter is an open-source tool and thus users need not worry about the cost. Learning and using this tool is not at all a big deal. In addition to this, customization of the JMeter tool to fit the exact needs is not at all a big deal. There are several tutorials and online communities to help that can help to eliminate any problem that declares its presence during the process.

### 15) What are the roles of Listeners in JMeter. Can you name a few of them?

Well, the prime role of listeners in the JMeter is to save the outcomes of tests after viewing the same. Basically, they are also very useful when it comes to graphical analysis as well as tabular analysis of the outcomes. A few of the commonly used Listeners are:

1. Aggregate Graph
2. View results tree
3. Aggregate report

### 16) Name a few timers in JMeter. For what purpose they are considered?

Some of the common timers used in the JMeter are:

1. Synchronizing timer
2. Uniform random timer
3. Gaussian random timer
4. Constant timer

Many times test gassing of a thread needs to be stopped for a specific time. Timers are used for the same purpose. They are capable to simply simulate the real user thinking time.

### 17) What do you mean by the Rendezvous point?

Spike testing is a very common approach in Jmeter. Actually, there are certain tasks that are associated with it. The prime task of the rendezvous point is to managing spike testing without creating any issue. Actually, the synchronizing timer is considered along with it to perform this task. You need to wait for the time till all the active users reach a value that is assigned during the load test.

## JMeter Interview Questions for Experienced

### 18) What do you know about assertions?

Samplers' requests are often made in the JMeter. The actual task of assertions is to check certain values in acknowledging the requests from the samplers. Some of the assertions which are used often are:

1. Xpath assertion
2. XML assertion
3. HTML assertion

In addition to these, another assertion i.e. Beansheel is also widely used for the same purpose.

|  |
| --- |
| ***Related Article:***[***JMeter Tutorial***](https://mindmajix.com/jmeter-tutorial) |

### 19) What do you mean by Plan a Test?

There are certain elements that are useful in a performance test. Test Plan is nothing but a logical packet that contains all those test elements. Some common examples are Assertions, thread groups as well as samplers.

### 20) What do you know about the Pre-processors in JMeter?

Before the sample requests are accomplished, Pre-processors are executed. Basically, these are nothing but the test plan elements that are helpful in ensuring reliability. Some of the widely used Pre-processors in the JMeter are:

1. RegEx
2. Beanshell
3. Rewriting modifier
4. Link paper for HTML

### 21) Is it possible to run JMeter in GUI? If so, explain how?

Yes, it is possible to run the JMeter in GUI. For this, a simple command is used and i.e.

       :jmeter -n -ttest.jmx -l test.jtl

### 22) How JMeter works?

It works very simply. There is nothing much you need to do. Actually, it simply acts as a pool of users that often sends their requests to the server. Collecting all the responses from the server is the responsibility of the JMeter.  These responses are then considered for analyzing the performance of the apps.

### 23) What are the different protocols that are supported by JMeter?

For testing web applications, JMeter uses Web protocols such as HTTPS as well as HTTP. When it comes to testing the service applications, both Rest and SOAP are supported by JMeter. In addition to this, it supports HTTP and JDBC for analyzing the applications of the database. Another common protocol that JMeter handles is the Lightweight Directory Access Protocol (LDAP). Also, the protocols for testing the mail servers such as IMAP and SMTP are compatible with JMeter.

### 24) How would you compare JMeter with other similar tools?

The best thing is its GUI which is very simple as well as intuitive as compared to other tools. It really doesn’t matter which platform you use on computers. Like other tools, it doesn’t face any compatibility issues. Also, it’s a freely available tool due to its open-source nature. JMeter is having a very unique feature in it that most of the other tools lack and i.e. it can be used easily for automated testing of the apps. The extensible nature makes it simply the best as compared with others. In addition to this, it permits concurrent sampling very easily. All the test plans can be prepared in XML format in JMeter.

### 25) What are the main parts of a Thread Group?

The main parts of Thread Group as mentioned below

1. **Controller:**  which controls the entire flow of the thread group
2. **Assertion:** This is responsible for time management. Basically, it checks whether the response is there within the specified time or not.
3. **Sampler:** Its task is to send different requests to the server
4. **Configuration elements:** It manages information related to the requests that are to be integrated with samplers
5. **Listeners:** Its task is to save the final outcome of the run.

### 26) How sampler and logical controllers in JMeter are different?

Both these controllers have their own tasks for which they are responsible. The controller sampler ensures all the requests are met by the server. On the other hand, the Logical controller is responsible for changing the manner of processing the requests that are originated from the elements.

### 27) What are the features of Configuration elements?

All the variables, as well as defaults that are used in the samplers, are created through Configuration elements. In case the need to change the request raised by the sampler is felt, configuration elements can perform this task. With the help of this, Java testing can be made simple by setting the default values. Configuration elements are very helpful when it comes to setting more than one user logins for the web pages. Also, default values can be set which it which are used by the HTTP controller.

### 28) Name at least 10 Listeners that JMeter is equipped with?

A lot of Listeners are present and each is responsible for performing a specific task. They are:

1. Summary Report
2. Graph Results
3. Spline Visualizer
4. Monitor Results
5. Data writer
6. Response time graph
7. Mailer Visualizer
8. Aggregate results
9. Backend listener
10. Bean Shell Listener

### 29) What are the applications that you can test with JMeter?

There are certain types of apps that you can test and a few of them are FTP, TCP, Websites, Shell Scripts, SMTP, JDBC, and LDAP.

### 30) What are Post-Processors in JMeter?

They are quite similar to the Pre-Processors. The only difference is they are used after the accomplishment of sampler requests. They can easily be used when it comes to taking values from the sampler response.

### 31)  What do you know about the Concurrent user hit in JMeter?

A concurrent user hit is when a very large number of users clash for a similar event of the app under lost test simultaneously. It is because this concurrency point is considered which makes the virtual users wait until others are already running the scripts.

# 5.WisdomJobs 40Q: <https://www.wisdomjobs.com/e-university/jmeter-interview-questions.html>

1. **Question 1. What Is Jmeter?**

**Answer :**

JMeter is one of the Java tools which is used to perform load testing client/server applications. Apache JMeter is open source software, a 100% pure Java desktop application designed to load test functional behavior and measure performance of the application. It was originally designed for testing Web Applications but has since expanded to other test functions.

1. **Question 2. Explain How Jmeter Works?**

**Answer :**

JMeter acts like a group of users sending requests to a target server. It collects response from target server and other statistics which show the performance of the application or server via graphs or tables.

[SILK TEST Interview Questions](https://www.wisdomjobs.com/e-university/silk-test-interview-questions.html)

1. **Question 3. Explain Where You Can Use Functions And Variables?**

**Answer :**

Variables and functions can be written into any field of any test component

1. **Question 4. Mention What Are Regular Expressions In Jmeter?**

**Answer :**

Based on the pattern, regular expression are used to search and manipulate text. JMeter is useful in interpreting forms of regular expression or patterns being used throughout a JMeter test plan.

[LoadRunner Tutorial](https://www.wisdomjobs.com/e-university/loadrunner-tutorial-170.html)

1. **Question 5. Explain What Is Samplers And Thread Groups?**

**Answer :**

**Thread group:** For any test plan, JMeter is the beginning part of thread group elements. It is an important element of JMeter, where you can set number of users and time to load all the users given in the thread group

**Samplers:** Sampler generates one or more sample results; these sample results have many attributes like elapsed time, data size, etc. Samplers allow JMeter to send specific types of requests to the server, through samplers, thread group decides which type of request it need to make. Some of the useful samplers are HTTP request, FTP request, JDBC request and so on.

[LoadRunner Interview Questions](https://www.wisdomjobs.com/e-university/loadrunner-interview-questions.html)

1. **Question 6. Whether The Test Plans Built Using Jmeter Are Os Dependent?**

**Answer :**

Usually, test plan are saved in their XML format, so there is nothing to do with any particular O.S. It can be run on any OS where JMeter can run.

**Question 7. Mention What Are The Types Of Processor In Jmeter?**

**Answer :**

**The types of processor in JMeter are:**

Pre-processor

Post processor

[Testing Tools Tutorial](https://www.wisdomjobs.com/e-university/testing-tools-tutorial-239.html" \o "Testing Tools Tutorial) [Testing Tools Interview Questions](https://www.wisdomjobs.com/e-university/testing-tools-interview-questions.html" \o "Testing Tools Interview Questions)

**Question 8. Explain What Are Pre-processor Elements? List Some Of The Pre-processor Elements?**

**Answer :**

A pre-processor is something that will happen before sampler executes. To configure the sample request prior to its execution or to update variables that are not extracted from response text pre-processor elements are used.

**Some of the pre-processor elements are:**

HTTP URL re-writing modifier

HTTP user parameter modifier

HTML link parser

BeanShell PreProcessor

**Question 9. Mention The Execution Order Of Test Elements?**

**Answer :**

The test plans elements execution order is

Configuration elements

Pre-processors

Timers

Samplers

Post-processors

Assertions

Listeners

[QTP Interview Questions](https://www.wisdomjobs.com/e-university/qtp-interview-questions.html" \o "QTP Interview Questions)

**Question 10. What Does “contain” And “matches” Indicates In The Regular Expression?**

**Answer :**

In the regular expression, contains indicates that the regular expression matched at least some part of the target. While matches means the regular expression matched the whole target. So, ‘alphabet’ is “matched” by ‘al.\*t.’

[QTP Tutorial](https://www.wisdomjobs.com/e-university/qtp-tutorial-260.html" \o "QTP Tutorial)

**Question 11. Explain What Is Configuration Elements?**

**Answer :**

A configuration element works parallel with a Sampler. To set up defaults and variables for later use by samplers configuration elements can be used. At the start of the scope, these elements are processed before any samplers in the same scope.

[Selenium Interview Questions](https://www.wisdomjobs.com/e-university/selenium-interview-questions.html" \o "Selenium Interview Questions)

**Question 12. Explain What Is A Timer In Jmeter And What Are The Types Of It?**

**Answer :**

A JMeter thread by default will send requests continuously without any pause. To get a pause between the request, Timers are used. Some of the Timers used are Constant Timer, Gaussian Random Timer, Synchronizing Timer, Uniform Random Timer and so on.

[SILK TEST Interview Questions](https://www.wisdomjobs.com/e-university/loadrunner-practice-tests-170-327179" \o "SILK TEST Interview Questions)

**Question 13. Explain What Is Test Fragment?**

**Answer :**

Test fragment is also a type of element like Thread Group element. The only difference is test fragment is not implemented unless it is referenced by either a Module controller or an Include controller.

[Selenium Tutorial](https://www.wisdomjobs.com/e-university/selenium-tutorial-476.html" \o "Selenium Tutorial)

**Question 14. Explain What Is Assertion In Jmeter? What Are The Types Of Assertion?**

**Answer :**

Assertion helps to verify that your server under test returns the expected results

Some commonly used Assertion in JMeter are

Response Assertion

Duration Assertion

Size Assertion

XML Assertion

HTML Assertion

**Question 15. Explain How You Can Reduce The Resource Requirement In Jmeter?**

**Answer :**

To reduce the resource requirements in JMeter

Use non-GUI mode: jmeter –n –t test.jmx –l test.jtl

During the load, test doesn’t use “view results tree” or “view results in table” listeners, use them only during scripting phase

Don’t use functional mode

Instead of using lots of similar samplers, use the same sampler in loop and use variable to vary the sample

[Selenium WebDriver Interview Questions](https://www.wisdomjobs.com/e-university/selenium-webdriver-interview-questions.html" \o "Selenium WebDriver Interview Questions)

**Question 16. Explain How You Can Perform Spike Testing In Jmeter?**

**Answer :**

By synchronizing, timer JMeter spike testing can be achieved. Synchronizing timer, blocks thread until a specific amount of threads has been blocked and then release them all together thus creating large instantaneous load.

**Question 17. Explain How You Can Capture The Script Of The Authentication Window In Jmeter?**

**Answer :**

Normally, you can capture script by recording.

First you have to Threadgroup in Testplan and then make HTTPProxyServer in Workbench

After that, set port number in Global Setting box (e.g., 8911) and modify your connection setting in IE as local host in address 8911 as in port Then you can start http proxy server in JMeter and run your application for login.

[Selenium IDE Interview Questions](https://www.wisdomjobs.com/e-university/selenium-ide-interview-questions.html" \o "Selenium IDE Interview Questions)

**Question 18. List Out Few Jmeter Listeners?**

**Answer :**

**Some of the JMeter Listeners are:**

Spline Visualizer

Aggregate Report

View Result Tree

View Result in Table

Monitor Results

Distribution Graph

BeanShell Listener

Summary Report and so on

[LoadRunner Interview Questions](https://www.wisdomjobs.com/e-university/loadrunner-interview-questions.html" \o "LoadRunner Interview Questions)

**Question 19. What Is Distributed Load Testing? How It Can Be Achieved?**

**Answer :**

Distributed load testing is the process through which numerous systems can be used for simulating load of a large number of users. By using the master-slave configuration, JMeter can do distribute load testing.

**Question 20. In Jmeter Is It Necessary To Call Embedded Resources Explicitly?**

**Answer :**

You can eliminate all embedded resources from being explicitly called. Requests have a checkbox at the bottom that says “retrieve embedded resources.” It would grab all CSS, JPG, etc. It is a brilliant way to find resources and broken link in a web App.

[Performance Testing Interview Questions](https://www.wisdomjobs.com/e-university/performance-testing-interview-questions-answers.html" \o "Performance Testing Interview Questions)

**Question 21. Explain What Is The Role Of Timer In Jmeter?**

**Answer :**

With the help of timer, JMeter can delay the time between each request, which a thread makes. It can solve the overload problem of the server.

**Question 22. Explain What Is Post-processor?**

**Answer :**

To perform any action after making a request, Post- processor is used. For example, if JMeter sends an http request to the web server, and if you want JMeter to stop sending the request if the web server shows an error, then you will use post-processor to perform this action.

**Question 23. What Are The Benefits That Jmeter Offers For Performance Testing?**

**Answer :**

JMeter offers benefits on performance testing like

It can be used to test performance for both, static resources as well as dynamic resources

It can handle a maximum number of concurrent users then your website can handle

It provides the graphical analyses of performance reports

[Server Load Balancing Interview Questions](https://www.wisdomjobs.com/e-university/server-load-balancing-interview-questions.html" \o "Server Load Balancing Interview Questions)

**Question 24. What Are The Protocols Supported By Jmeter?**

**Answer :**

**The protocols supported by JMeter are:**

Web: HTTP, HTTPS sites 'web 1.0' web 2.0 (ajax, flex and flex-ws-amf)

Web Services: SOAP / XML-RPC

Database via JDBC drivers

Directory: LDAP

Messaging Oriented service via JMS

Service: POP3, IMAP, SMTP

FTP Service

[Testing Tools Interview Questions](https://www.wisdomjobs.com/e-university/testing-tools-interview-questions.html" \o "Testing Tools Interview Questions)

**Question 25. List Some Of The Features Of Jmeter.?**

**Answer :**

**Following are some of the features of JMeter:**

Its free. Its an open source software.

It has simple and intuitive GUI.

JMeter can load and performance test many different server types: Web - HTTP, HTTPS, SOAP, Database via JDBC, LDAP, JMS, Mail - POP3

It is platform-independent tool. On Linux/Unix, JMeter can be invoked by clicking on JMeter shell script. On Windows it can be invoked by starting the jmeter.bat file.

It has full Swing and lightweight component support (precompiled JAR uses packages javax.swing.\* ).

JMeter store its test plans in XML format. This means you can generate a test plan using a text editor.

It's full multi-threading framework allows concurrent sampling by many threads and simultaneous sampling of different functions by separate thread groups.

It is highly Extensible.

Can also be used to perform automated and functional testing of your application.

**Question 26. What Is A Test Plan In Jmeter?**

**Answer :**

A Test Plan defines and provides a layout of how and what to test. For example the web application as well as the client server application. It can be viewed as a container for running tests. A complete test plan will consist of one or more elements such as thread groups, logic controllers, sample-generating controllers, listeners, timers, assertions, and configuration elements. A test plan must have at least one thread group.

[Sql Loader Interview Questions](https://www.wisdomjobs.com/e-university/sql-loader-interview-questions.html" \o "Sql Loader Interview Questions)

**Question 27. List Some Of The Test Plan Elements In Jmeter.?**

**Answer :**

**Following is a list of some of the test plan elements:**

ThreadGroup

Controllers

Listeners

Timers

Assertions

Configuration Elements

Pre-Processor Elements

Post-Processor Elements

[QTP Interview Questions](https://www.wisdomjobs.com/e-university/qtp-interview-questions.html" \o "QTP Interview Questions)

**Question 28. What Is Thread Group?**

**Answer :**

Thread Group elements are the beginning points of your test plan. As the name suggests, the thread group elements control the number of threads JMeter will use during the test.

**Question 29. What Are Controllers And Its Types?**

**Answer :**

**JMeter has two types of Controllers:**

**Samplers Controllers :** Samplers allow JMeter to send specific types of requests to a server. They simulate a user's request for a page from the target server. For example, you can add a HTTP Request sampler if you need to perform a POST, GET, DELETE on a HTTP service

**Logical Controllers :** Logic Controllers let you control order of processing of Samplers in a Thread. Logic Controllers can change the order of request coming from any of their child elements. Some examples are: ForEach Controller, While Controller, Loop Controller, IF Controller, Run Time Controller, Interleave Controller, Throughput Controller, Run Once Controller.

[Protocol Testing Interview Questions](https://www.wisdomjobs.com/e-university/protocol-testing-interview-questions.html" \o "Protocol Testing Interview Questions)

**Question 30. What Is Configuration Element?**

**Answer :**

Configuration Elements allow you to create defaults and variables to be used by Samplers. They are used to add or modify requests made by Samplers.

They are executed at the start of the scope of which they are part, before any Samplers that are located in the same scope. Therefore, a Configuration Element is accessed only from inside the branch where it is placed.

**Question 31. What Are Listeners?**

**Answer :**

Listeners let you view the results of Samplers in the form of tables, graphs, trees or simple text in some log files. They provide visual access to the data gathered by JMeter about the test cases as a Sampler component of JMeter is executed.

Listeners can be added anywhere in the test, including directly under the test plan. They will collect data only from elements at or below their level.

**Question 32. What Are Pre-processor And Post-processor Elements?**

**Answer :**

A Pre-Procesor is something that will happen before a sampler executes. They are often used to modify the settings of a Sample Request just before it runs, or to update variables that are not extracted from response text.

A Post Processor executes after a sampler finishes its execution. This element is most often used to process the response data, for example, to retrieve particular value for later use.

**Question 33. What Is The Execution Order Of Test Elements?**

**Answer :**

**Following is the execution order of the test plan elements:**

Configuration elements

Pre-Processors

Timers

Sampler

Post-Processors (unless SampleResult is null)

Assertions (unless SampleResult is null)

Listeners (unless SampleResult is null)

[Selenium Interview Questions](https://www.wisdomjobs.com/e-university/selenium-interview-questions.html" \o "Selenium Interview Questions)

**Question 34. How Do You Ensure Re-usability In Your Jmeter Scripts?**

**Answer :**

Using config elements like "CSV Data Set Config", "User Defined Variables", etc for greater data reuse.

Modularizing shared tasks and invoking them via a "Module Controller".

Writing your own BeanShell functions, and reusing them.

**Question 35. Are The Test Plans Built Using Jmeter Os Dependant?**

**Answer :**

Test plans are usually saved in thr XML format, hence they have nothing to do with any particular OS. You can run those test plans on any OS where JMeter can run.

**Question 36. What Are The Monitor Tests?**

**Answer :**

**Uses of monitor tests are:**

Monitors are useful for a stress testing and system management.

Used with stress testing, the monitor provides additional information about server performance.

Monitors makes it easier to see the relationship between server performance and response time on the client side.

As a system administration tool, the monitor provides an easy way to monitor multiple servers from one console.

[Selenium WebDriver Interview Questions](https://www.wisdomjobs.com/e-university/selenium-webdriver-interview-questions.html" \o "Selenium WebDriver Interview Questions)

**Question 37. What Are Jmeter Functions?**

**Answer :**

JMeter functions are special values that can populate fields of any Sampler or other element in a test tree.  
A function call looks like this:

${\_\_functionName(var1,var2,var3)}

**Question 38. Where Can Functions And Variables Be Used?**

**Answer :**

Functions and variables can be written into any field of any test component.

**Question 39. What Are Regular Expressions In Jmeter?**

**Answer :**

Regular expressions are used to search and manipulate text, based on patterns. JMeter interprets forms of regular expressions or patterns being used throughout a JMeter test plan, by including the pattern matching software Apache Jakarta ORO.

**Question 40. How Can You Reduce Resource Requirements In Jmeter?**

**Answer :**

**Below are some suggestion to reduce resource requirements:**

Use non-GUI mode: jmeter -n -t test.jmx -l test.jtl.

Use as few Listeners as possible; if using the -l flag as above they can all be deleted or disabled.

Disable the “View Result Tree” listener as it consumes a lot of memory and can result in the console freezing or JMeter running out of memory. It is, however, safe to use the “View Result Tree” listener with only “Errors” checked.

Rather than using lots of similar samplers, use the same sampler in a loop, and use variables (CSV Data Set) to vary the sample. Or perhaps use the Access Log Sampler.

Don't use functional mode.

Use CSV output rather than XML.

Only save the data that you need.

Use as few Assertions as possible.

Disable all JMeter graphs as they consume a lot of memory. You can view all of the real time graphs using the JTLs tab in your web interface.

Do not forget to erase the local path from CSV Data Set Config if used.

Clean the Files tab prior to every test run.

# AOT 35Q: <https://artoftesting.com/jmeter-interview-questions>

**Ques.1. What is Performance Testing?**  
Ans. [Performance testing](https://artoftesting.com/performance-testing) is a [non-functional type of testing](https://artoftesting.com/non-functional-testing) in which the application’s performance is evaluated under expected or higher load. It is done before the application is deployed on production to ensure that it doesn’t crash and responds within standard/acceptable time at real load.

**Ques.2. What are the different types of Performance Testing techniques?**  
Ans. The [different types of performance testing](https://artoftesting.com/types-of-performance-testing) are-

* [Load Testing](https://artoftesting.com/load-testing) – Type of performance testing to measure the application behavior under the expected workload.
* [Stress Testing](https://artoftesting.com/stress-testing) – Evaluating the application’s behavior under load higher than the application’s threshold or peak load conditions.
* [Endurance Testing](https://artoftesting.com/endurance-testing) – Testing application under prolonged load test, usually used to detect memory leaks in the application.
* [Spike Testing](https://artoftesting.com/spike-testing) – Evaluating the application’s behavior on a sudden increase in the number of users than normal.
* [Volume Testing](https://artoftesting.com/volume-testing) – Testing the application with a large amount of data, For instance, testing with usually with large records of data in the database.

**Ques.3. What all activities are performed during performance testing of any application?**  
Ans. Activities performed during performance testing are-

1. **Performance Test Requirements Gathering & Analysis** – In this phase, all the details about the application are gathered from the client and other stakeholders of the application.
2. **Testing Tool Selection** – This phase involves the selection of the performance test tools.
3. **Performance Tests Planning** – The test planning phase includes planning the whole performance testing process, infrastructure, and environment setup; use case scenarios to be scripted, etc.
4. **Test Script Implementation** – In this phase, the performance test scripts are created using the tool selected in the previous phases.
5. **Performance Test Execution** – In this phase, the test script is executed for a predefined time specified during the planning phase.
6. **Test Result Analysis** – The result analysis phase includes consolidating the test results. Moreover, it helps in determining the different performance attributes of the application and finding the performance bottlenecks.

**Ques.4. What is JMeter?**  
Ans. JMeter is an open-source performance testing tool developed in Java. It can be used for carrying out performance testing of web-based applications, web services(both SOAP and Rest), FTP server, Databases, LDAP server etc.



**Ques.5. Why should we choose the JMeter tool for performance testing?**  
Ans. The advantages of using the JMeter tool for performance testing are-

1. It is free to use with zero licensing costs.
2. It is open-source. In other words, anyone can customize it for their specific use.
3. There is good online community support and tutorials for JMeter.
4. It supports performance testing of a wide variety of applications. For example – websites, web services to FTP, and Databases.
5. It is easy to learn and use.

**Ques.6. Explain the internal working of JMeter.**  
Ans. JMeter simulates real-world user load by creating multiple threads making concurrent requests to a target server. After that, it displays the performance of the server in the form of tables and graphs.

**Ques.7. Does JMeter tool simulate a real browser?**  
Ans. No, JMeter does not simulate or function like a real browser. It cannot render HTML response like an actual browser.

**Ques.8. What are some features of JMeter?**  
Ans. Some of the features of JMeter are-

1. JMeter is 100% Java-based. So, it has all the advantages of Java-based applications like portability, extensibility, robustness, etc.
2. It has a record and playback feature that ensures the easy and fast creation of test scripts.
3. JMeter provides different listeners to capture and analyze the test results in both tabular and graphical format.
4. It can be used to load test different protocols- HTTP, HTTPS, FTP, LDAP, TCP, etc.

**Ques.9. How can we record performance test scripts in JMeter?**  
Ans. JMeter has HTTP(S) Test Script Recorder using which we can perform operations on a browser and the HTTP requests get recorder in JMeter.

**Ques.10. Do we need to learn coding to create scripts in JMeter?**  
Ans. Script creation in JMeter is somewhat different from normal automated script creation. Mostly, a script can be created by recording or using JMeter UI. Followed by parameterization of tests, correlation, and configuration of different test parameters.  
Having said that, coding is required in some scenarios and can be done with Beanshell scripting.

**Ques.11. JMeter is Java-based. Can we use it to do performance testing of application implemented in other platforms/languages like .Net?**Ans. Yes, we can test web applications developed in other languages and platforms using JMeter.

**Ques.12. What kind of applications can be tested using JMeter?**  
Ans. The different kinds of applications that can be tested using JMeter are-

* Websites
* Web services – REST and SOAP
* Databases(JDBC)
* Shell scripts
* FTP
* LDAP
* TCP
* SMTP, POP3, IMAP

**Ques.13. Explain parameterization in JMeter?**  
Ans. Parameterization is the process of parameterizing the user input or other test inputs. So as to use different values for different users and loop iterations. For instance, an external CSV file can be created with multiple login credentials and then passed to the load test script in order to fetch different credentials for each iteration.  
  
[For more details, refer to the post- [Parameterization in JMeter](https://artoftesting.com/parameterization)]

**Ques.14. What is correlation?**  
Ans. Correlation is the most important aspect of scripting in JMeter. It includes fetching dynamic data from preceding requests/calls and passing them to the subsequent requests as parameters. For example, we can extract the values of session variables from the response of the request with login details and then pass those values to the subsequent requests (thus handling the sessions). [For more details, refer to the post- [Correlation in JMeter](https://artoftesting.com/correlation)]

**Ques.15. What is a Test Plan?**  
Ans. A Test plan in JMeter is a logical container that contains all the test elements which constitute the performance test. Some of the different elements in a test plan are – Thread Group, Samplers, Timers, Assertions, Listeners, etc.

**Ques.16. What is Workbench?**  
Ans. A Workbench in JMeter is a temporary area of storage for the test elements. It also contains non-test elements like HTTP Proxy Server, which can be configured to record scripts via browser in JMeter. Any element placed in the workbench doesn’t get saved after with the test plan’s JMX script.

**Ques.17. What is a thread group in JMeter?**  
Ans. A Thread Group is an element of a JMeter test plan that represents a pool of virtual users performing a set of operations.

**Ques.18 What is a test fragment in JMeter?**  
Ans. A test fragment is a special type of controller in JMeter whose sole purpose is to provide code reusability capability in the test plan. It is like a Thread Group. But is not executed unless it is referenced by either a Module Controller or an Include\_Controller.

**Ques.19. What is the ramp-up period?**  
Ans. At the beginning of the load test of an application instead of putting all the users live, we slowly ramp up the number of users in order to study their effect in the application’s performance. In JMeter, the ramp-up period defines the time period within which all the specified users get in running state.

**Ques.20. What are samplers in JMeter?**  
Ans. [Samplers in JMeter](https://artoftesting.com/samplers-in-jmeter) are used for sending different types of requests to the server. Some of the commonly used samplers are – HTTP Request, JDBC Request, SOAP-XML Request, JUnit request, TCP Sampler, etc.

**Ques.21. What are Listeners in JMeter? State some of the widely used Listeners?**  
Ans. Listeners are used for viewing, saving test results and also help in tabular and graphical analysis of the test results. Some of the widely used Listeners are – Aggregate Report, Aggregate Graph, Graph Results, View Results Tree, etc.

**Ques.22. What is a JTL file in JMeter?**  
Ans. The test results in JMeter is saved in the form of JTL files. JTL is an acronym for JMeter Test Logs.

**Ques.23. What are the different timers in JMeter?**  
Ans. Timers are used for halting the test execution of a thread for a certain predefined time. In addition, these timers are used for simulating the real user think time. The different types of timers available in JMeter are – Constant Timer, Gaussian Random Timer, Uniform Random Timer, Constant Throughput Timer, Synchronizing Timer, Beanshell timer, BSF Timer, etc.

**Ques.24. What is the difference between the Gaussian random timer vs Poisson random timer?**Ans. Both Gaussian and Poisson random timers are used to pause the test execution for a random amount of time but close a specific value. The difference between the two lies in their underlying implementation algorithms to generate the random values.

**Ques.25. What is a Rendezvous Point?**  
Ans. The Rendezvous point in JMeter is used to perform spike testing. It is performed using “Synchronizing Timer” by waiting until the number of active users reaches a certain specified value during the load test.

**Ques.26. What are assertions in JMeter? Explain the available assertions in JMeter.**  
Ans. Assertions in JMeter are used for verification of certain values in the response of Sampler’s requests. The commonly used assertions are – response assertion, size assertion, XML assertion, BeanShell assertion, HTML Assertion, XPath assertion, etc.

**Ques.27. What is the use of Configuration elements?**  
Ans. Configuration elements are used for customizing the sampler requests e.g. CSV Data Set Config can be used for parameterizing the sampler requests with values fetched from the external CSV file.

**Ques.28. What are Pre-Processors?**  
Ans. Pre-processors are the test plan elements that are executed before the sampler request execution. Some commonly used pre-processor in JMeter are BeanShell PreProcessor, HTML Link Parser, HTTP URL Re-writing Modifier, RegEx User Parameters, etc.

**Ques.29. What are Post-processors?**  
Ans. Post-processors are the test plan elements that are executed after the sampler request execution. Generally, post processors are used for fetching some values from the sampler response.

**Ques.30. What is the order of execution of JMeter test plan elements?**Ans. The order of execution of the test plan elements is-

1. Configuration elements.
2. Pre-Processors.
3. Timers.
4. Sampler.
5. Post-Processors
6. Assertions
7. Listeners

**Ques.31. How can we run JMeter in non-GUI mode?**  
Ans. Command to run JMeter in non-GUI mode-

jmeter -n -t test.jmx -l test.jtl

Where,  
n specifies that JMeter will run in non-GUI mode  
-t for test script file  
-l for jtl file having each sample’s result

**Ques.32. How can we reduce the resource requirement in JMeter?**  
Ans. To make the best out of the available resources and in general as a practice, the following practices should be incorporated in the tests-

* Use the non-GUI mode to run the scripts :**jmeter -n -t test.jmx -l test.jtl**
* Use as few Listeners as possible in the test plan.
* Avoid the use of “View Results Tree” or “View Results in Table” listeners during the load test. Use them only during the scripting phase to debug your scripts.
* Rather than using lots of similar samplers, use the same sampler in a loop. Also, make use of variables (using CSV Data Set) to vary the samples.
* Don’t use JMeter’s functional mode during your performance test executions.
* Use CSV output rather than XML as it is much lighter.
* Only save the data that you are going to need.
* Use as few Assertions as possible during the load test.

[ source: [JMeter Best Practices by Apache](https://jmeter.apache.org/usermanual/best-practices.html)]

**Ques.33. What is 90% line in JMeter?**  
Ans. The aggregate report listener has 90% line as one of the metrics. The Apache JMeter manual describes 90% line as- “90% of the samples took no more than this time”. It is actually the 90 percentile of the response times of the samples –  
90 percentile = (90/100)\*N+1/2 where N is the number of samples  
  
So, if there are 10 samples then 90%line will be 9.5 or 9. It means the 9th value in the sorted list of samples (sorted according to ascending order of their response times).

**Ques.34. What is distributed load testing? How can it be achieved in JMeter?**  
Ans. Distributed load testing is the process using which multiple systems can be used for simulating the load of a large number of users. The reason for using more than one system for load testing is the limitation of a single system to generate a large number of threads (users).  
  
In JMeter, we can do distributed load testing using the master-slave configuration.  
  
[For complete steps to perform distributed load testing refer to the post- [Distributed load testing in JMeter](https://artoftesting.com/distributed-load-testing-in-jmeter)].

**Ques.35. Is it possible to run Selenium scripts in JMeter?**  
Ans. Yes, with the help of the **WebDriver Set** plugin, we can run Selenium Webdriver scripts in JMeter.

=======================================================

# 7.VSkills 61Q: <https://www.vskills.in/interview-questions/jmeter-interview-questions>

Top of Form

**Q.1Explain the architecture of Jmeter.**

Jmeter is an open source application which is Java based, designed for the purpose of Load Testing.

Jmeter supports all major protocols which are supported in Load Runner. But unlike any browser, Jmeter works on different levels of protocols and does not execute JavaScript present in HTML web pages.

Bottom of Form

Top of Form

**Q.2How can Jmeter simulate actual browser behavior?**

Jmeter does not support the actual browser behavior as it does not render the HTML webpages as the normal browser.

Such that response can be seen in HTML format but the actual timings are not there in the generated samples.

Bottom of Form

Top of Form

**Q.3What is the use of Regular Expression in Jmeter?**

Regular Expression in Jmeter is used for extracting some values dynamically from the responses with an objective to use to it in the subsequent request or save it for reporting purposes.

Regular Expression is used in both Pre-Processors as well as Post Processors.

Bottom of Form

Top of Form

**Q.4What are the different methods used in Data Parametrization in Jmeter?**

The objective of data parametrization is to make the scripts reusable where the values need not be hardcoded for the same request with different parameters.

The data parametrization that is supported in Jmeter are -

1. CSV Data Set Config

2. User Defined Variables

Bottom of Form

Top of Form

**Q.5How many maximum threads are recommended on a single system?**

The recommendation of maximum threads on a single system is based on the hardware configuration of the system which includes a processor, JVM, allocated memory -Xmx, etc.

There are other factors as well that impact this such as the number of components in the test plan like the number of config elements or processors and it also depends on whether you are using GUI/Non-GUI Mode.

Bottom of Form

Top of Form

**Q.6What is the difference between Gaussian and Poisson Timers?**

Since both Gaussian and Poisson Timers work on a mathematical formula that has some constant delay and additional offset.

The point of difference between the Gaussian and Poisson Timers is because of in the fact that the lambda value is calculated in case of Poisson timer and deviation is calculated in case of Gaussian Timer.

Bottom of Form

Top of Form

**Q.7What is the primary use of co-relation in Jmeter?**

Co-relation is basically a process in which the values can be extracted from the server response and stored in a variable which is then then used in any other request which is to follow.

For instance in order to test any login functionality if you have to use session ID/cookie ID , you can then extract the value from the response of GET request of the login page and then dynamically use the same while making POST request for login.

Bottom of Form

Top of Form

**Q.8What is the purpose of listeners?**

Listeners are majorly used for storing the execution results of load testing in different forms like table, graph, tree or in any other presentable format which can be presented to the client.

There are different type of inbuilt listeners in Jmeter and many others can be imported into it by using plugins as per the requirement.

There are some inbuilt listeners like View Results in Table, View Results Tree, Graph Results, Aggregate Graph, Aggregate Report, Assertion Results and Response Time Graph.

Bottom of Form

Top of Form

**Q.9What will be flow of Test Script Recorder?**

The Test Script Recorder is majorly used to record all the http(s) request which is going to the server from the application. Such that there are some other configurations that are required to be done in Jmeter in order to make it functional.

We should follow the following steps to record https traffic

1. Firstly add HTTP(s) Test Script Recorder to WorkBench.

2. Then enter the port number which you want to start your proxy server from.

3. Thirdly select the Target either as “Workbench” only or add a Recording Controller in the test plan and select the same as Target so that all the recordings are stored under it.

4. Next start the Proxy Server.

5. Lastly configure the browser with manual proxy settings pointing to the same port number used in the test script recorder.

Bottom of Form

Top of Form

**Q.10How can Jmeter record actions from Mobile?**

Jmeter can record HTTP or https request going to the server from your mobile application also. Therefore Mobile and Jmeter should be on the same network.

The configuration required to record actions from Mobile,

1. First configure the proxy server in JMeter to run at a specified port.

2. Second set up a proxy on the mobile wifi settings and then enter the same port number that is used in the recorder.

3. Third install the Root CA certificate on the mobile.

4. Fourth hit server request from the mobile and observe it getting captured by the specified controller.

Bottom of Form

Top of Form

**Q.11How would you do master-slave configuration in Jmeter?**

Master-Slave configuration is considered as a part of Distributed Testing in which case more than one machine is used to perform load testing of the server under test. Such that it becomes important that all machines are on the same network and all have the same version of Jmeter. Also in distributed testing, one machine is made as the Master and the others are kept as slaves by doing some configurations.

Steps to perform master-slave configuration are -

1. Edit the jmeter.properties file on the master machine, and add the IP addresses of slave machines against the remote\_host field in the file.

2. Next save the file and open the Jmeter again.

3. Now from the RUN menu in Jmeter, select Remote Start and choose the IP of the machine to be invoked.

4. Choose RUN menu and select Remote Start all to start all the slave machines for testing.

Bottom of Form

Top of Form

**Q.12Would you recommend to run Jmeter in GUI Mode?**

Indeed, Jmeter tests can be run both GUI as well as Non-GUI Mode.

But it is recommended to run the load test in Non-GUI mode since AWT Event Thread can kill the tests in case of high load scenarios.

Some of the Non-GUI mode supported with Jmeter such as - Command Line, ANT Plugin, MAVEN Plugin, and Jenkins.

Bottom of Form

Top of Form

**Q.13Can to run Selenium scripts in Jmeter?**

We can run selenium scripts in Jmeter to get some ideas on their performance.

This can be done by either using Junit libraries to build Selenium scripts and save as Jars and copy the same in Jmeter directory. Else add Junit sampler to the test plan and import the Jar file.

Otherwise, we can add the Webdriver sampler plugin in the JMeter ext folder and then restart the Jmeter. We can then write the selenium code in the Webdriver sampler and then execute to see the performance.

Bottom of Form

Top of Form

**Q.14How can we manage session and cookies in Jmeter?**

We can manage the sessions and cookies in Jmeter by using config elements like HTTP Cache Manager which provides an option to clear the cookies in every iteration and also allows to add user-defined cookies.

The HTTP Cache manager primarily helps you in clearing cache after each iteration as per your requirement in the load tests and thereby limit the number of elements that can be stored in the cache. In which case both the config elements can be attached to the HTTP sampler.

Bottom of Form

Top of Form

**Q.15Let us suppose I have multiple screens in my mobile app. Then can Jmeter measure the time taken to flip the screens or can Jmeter measure the performance of a complete application?**

At no point of time Jmeter measure the transition time between the screens. As it can only measure the server actions not the UI interactions.

Bottom of Form

Top of Form

**Q.16What is the use of Workbench?**

Workbench is primarily used as a storage area for adding components that can be added to test plan as and when required.

Such that the components of workbench does not get saved with the test plan automatically. They have to be saved separately as test fragments.

Workbench is known for HTTP(s) Test script recorder which is extremely useful in recording the https request and later load can be applied on them to measure the response time.

Bottom of Form

Top of Form

**Q.17Which programming language does JMeter is based on?**

Jmeter is based on Java programming language and not on other programming languages.

Bottom of Form

Top of Form

**Q.18Which XML parser is present in Jmeter?**

JMeter comes with Apache's Xerces XML parser and not with other listed options.

Bottom of Form

Top of Form

**Q.19What is the default protocol used when testing a web server using SSL encryption?**

TLS is used when testing a web server using SSL encryption

Bottom of Form

Top of Form

**Q.20Which file extension is accepted by JMeter for JDBC driver?**

Jar

Bottom of Form

Top of Form

**Q.21What is the first step you want to do with every JMeter FTP Test Plan?**

Add jmeter.properties file in lib

Bottom of Form

Top of Form

**Q.22What happens if an undefined function or variable is referenced?**

If an undefined function or variable is referenced, JMeter does not report/log an error - the reference is returned unchanged.

Bottom of Form

Top of Form

**Q.23How many JMS samplers can be used in Jmeter?**

1

Bottom of Form

Top of Form

**Q.24What is the default port for LDAP over SSL**

The default port for LDAP over SSL is 625

Bottom of Form

Top of Form

**Q.25What is Apache JMeter testing?**

Apache JMeter testing involves using the open source Apache JMeter software for testing of software application. Apache JMeter testing is applied for performance check of both static and dynamic resources.  Apache JMeter simulates a heavy load on application, to test its strength or to analyze overall performance under different load types.

Apache JMeter is widely used for performance testing of web applications. Apache JMeter is open source software and made in Java programming language.

Bottom of Form

Top of Form

**Q.26Is JMeter easy to learn?**

Yes, Apache JMeter is very easy to learn if you are conversant with Java programming language. Detailed documentation with examples and use cases are listed on Apache JMeter website at link - [https://ApacheJMeter.apache.org/index.html](https://apachejmeter.apache.org/index.html)

Various websites also list tutorials, videos and examples on using Apache JMeter, as - <https://www.vskills.in/certification/tutorial/information-technology/ApacheJMeter-tester-certification/>

Bottom of Form

Top of Form

**Q.27How JMeter is used for performance testing?**

Apache JMeter tests performance by load testing the functional behavior of software application and measuring performance. Apache JMeter tests performance both on static and dynamic resources. Apache JMeter is widely used for performance testing of web applications.

Apache JMeter simulates a heavy load on application, to test its strength or to analyze overall performance under different load types.

Conducting performance testing by Apache JMeter requires, Apache JMeter test plan to be created. A Apache JMeter test plan lists steps which Apache JMeter will run, when Apache JMeter is executed.

A Apache JMeter test plan has

* Thread Groups
* logic controllers
* sample generating controllers
* listeners
* timers
* assertions
* configuration elements

Bottom of Form

Top of Form

**Q.28What is JMeter and how it works?**

JMeter is actually, Apache JMeter and is open source software application to conduct performance test on software applications. Apache JMeter is extensively used for performance testing of web applications.

Apache JMeter works by executing a test plan, made by test engineer or manager. The Apache JMeter test plan lists steps to execute. A Apache JMeter test plan has

* Thread Groups
* logic controllers
* sample generating controllers
* listeners
* timers
* assertions
* configuration elements

Apache JMeter can conduct multiple test types, for Web (HTTP/HTTPS), FTP, JDBC, LDAP, Database, Mail (SMTP/POP3) , REST.

Bottom of Form

Top of Form

**Q.29Which is better LoadRunner vs JMeter?**

JMeter is better, considering no purchase cost, huge support and available documentation.

JMeter also scores more against LoadRunner as, JMeter can

* conduct multiple test types, for Web (HTTP/HTTPS), FTP, JDBC, LDAP, Database, Mail (SMTP/POP3), REST.
* supports multiple operating system
* based on popular Java programming language
* has CLI and GUI mode

Bottom of Form

Top of Form

**Q.30Does JMeter require coding?**

To a minimum, Apache JMeter GUI minimizes the amount of coding needed to prepare a test plan.  Apache JMeter does performance testing by executing test plans. Preparing the Apache JMeter test plan in central to Apache JMeter.

But validation, verification or customization of test plan require coding for quick and effective Apache JMeter testing.

Bottom of Form

Top of Form

**Q.31Why JMeter is better than LoadRunner?**

Apache JMeter is better than LoadRunner as

* being open source no purchase cost is involved
* documentation and huge support for Apache JMeter present globally by volunteers
* easily customized as per need

Apache JMeter also can

* Do multiple test types, for Web (HTTP/HTTPS), FTP, JDBC, LDAP, Database, Mail (SMTP/POP3), REST.
* runs on multiple operating system
* uses popular Java programming language
* provides both CLI and GUI mode

Bottom of Form

Top of Form

**Q.32Which language is used in JMeter?**

Apache JMeter uses Java programming language.

Apache JMeter tests performance by executing test plans.  Apache JMeter GUI reduces coding to prepare a test plan. With Apache JMeter GUI very less coding in Java programming language, is needed.

Apache JMeter tests the functional behavior of software application and measures its performance. Apache JMeter tests performance both on static and dynamic resources. Apache JMeter is widely used for performance testing of web applications.

Bottom of Form

Top of Form

**Q.33Why do we use JMeter?**

Apache JMeter does performance testing by load testing the functional behavior of the software application and measures performance. Apache JMeter tests performance both on static and dynamic resources. Apache JMeter is widely used for performance testing of web applications.

Apache JMeter is used by users across the globe due to

* Open source, no purchase cost
* Wide availability of tutorials, videos, etc
* Extensive documentation
* Worldwide volunteers resolve issues

Bottom of Form

Top of Form

**Q.34How do I start Apache JMeter?**

Apache JMeter can be started in CLI Mode and GUI Mode

Execute jmeter.bat (on Windows) or jmeter (for Unix/Linux) file in bin directory. By default GUI Mode opens up.

For CLI or command line mode run the above files in bin directory, with –n flag.

CLI mode is used to run the test plans.

Bottom of Form

Top of Form

**Q.35Can JMeter be used for .NET applications?**

Yes, Apache JMeter tests the functional behavior of .Net application and its performance. Apache JMeter tests performance both on static and dynamic resources. Apache JMeter is widely used for performance testing of web applications.

Apache JMeter can be used for

* Load Testing ASP.NET Sites
* Load Testing ASP.NET Web Applications
* Stress Testing ASP.NET
* Sending HTTP POST Request to an ASP.NET web-site
* ASP.NET WebForms Authentication

Bottom of Form

Top of Form

**Q.36What is JMeter in selenium?**

Both, Apache JMeter and Selenium can be integrated. Using Selenium in Apache JMeter, by using Apache JMeter WebDriver plugin.

Copy the files of WebDriver plugin to libs and ext directory of Apache JMeter. In Apache JMeter GUI, web browser specific tests can be executed like Chrome test / Firefox test, etc.

Bottom of Form

Top of Form

**Q.37Is JMeter used for functional testing?**

Yes, Apache JMeter can test functional behavior of software application and its performance. Apache JMeter tests performance both on static and dynamic resources. Apache JMeter is widely used for performance testing of web applications.

Apache JMeter is open source software and hence user can customize as per their needs.

Bottom of Form

Top of Form

**Q.38How many users can JMeter simulate?**

Apache JMeter can simulate unlimited number of users.

Number of users is specified by the number of threads, in a test plan.

But, remember that the thread count is limited by the hardware resources of the computer machine the test is conducted and number of file descriptors else, testing speed will degrade.

Limitation can be circumvented by conducting distributed Apache JMeter tests or using cloud solutions.

Bottom of Form

Top of Form

**Q.39Can we automate JMeter?**

Yes, we can automate Apache JMeter.

Automation can be implemented in Apache JMeter by

* Integrating with Maven under continuous testing of DevOps
* Using Apache JMeter GUI for test plan creation, reducing test plan development.
* Saving and managing frequent test plans
* Using Robotic Process Automation tool

Bottom of Form

Top of Form

**Q.40Who uses JMeter?**

Apache JMeter is used by software development companies across the globe like IBM, Oracle, Capgemini, TCS, etc.

Apache JMeter is used to test functional behavior of software application and its performance. Apache JMeter tests performance both on static and dynamic resources. Apache JMeter is widely used for performance testing of web applications.

Bottom of Form

Top of Form

**Q.41Can JMeter be used for API testing?**

Yes, Apache JMeter supports testing of SOAP / REST Web services.

Performance testing of RESTful API can be done by Apache JMeter.

Bottom of Form

Top of Form

**Q.42Who developed JMeter?**

Stefano Mazzocchi, working at Apache Software Foundation, developed Apache JMeter.

Apache Software Foundation later redesigned Apache JMeter’s GUI and to added functional-testing capabilities.

Apache JMeter is open source software and hence user can customize as per their needs.

Bottom of Form

Top of Form

**Q.43Is JMeter a good tool?**

Yes, of course Apache JMeter is a good tool.

Apache JMeter is good tool because

* Open source so, no purchase cost
* Can do multiple test types, for Web (HTTP/HTTPS), FTP, JDBC, LDAP, Database, Mail (SMTP/POP3), REST.
* runs on multiple operating system
* uses popular Java programming language
* provides both CLI and GUI mode

Bottom of Form

Top of Form

**Q.44Which tool is best for performance testing?**

Apache JMeter is the best tool for performance testing.

Apache JMeter scores the most marks as

* Open source so, no purchase cost
* Can do multiple test types, for Web (HTTP/HTTPS), FTP, JDBC, LDAP, Database, Mail (SMTP/POP3), REST.
* runs on multiple operating system
* uses popular Java programming language
* provides both CLI and GUI mode

Bottom of Form

Top of Form

**Q.45Is JMeter an automation tool?**

Yes, Apache JMeter is automation tool which automates performance testing.

You can easily create a test plan or steps for executing a performance test on software application by Apache JMeter GUI.

You can also integrate Apache JMeter with Maven for continuous testing under DevOps and automate performance testing.

Bottom of Form

Top of Form

**Q.46Is coding required for performance testing?**

Yes, depending upon performance testing tool being used.

Apache JMeter performance testing tool is open source toll which has very low coding requirement. Apache JMeter GUI minimizes the amount of coding needed to prepare a test plan.  Apache JMeter does performance testing by executing test plans. Preparing the Apache JMeter test plan in central to Apache JMeter.

But validation, verification or customization of test plan require coding for quick and effective Apache JMeter testing.

Bottom of Form

Top of Form

**Q.47What is JMeter script?**

Apache JMeter script stores actions a user would take in the application being tested. This helps in validating user behavior and application performance under different load conditions.

Script helps in replaying user actions so as to better test the application for more used functionality of the software application.

Bottom of Form

Top of Form

**Q.48How do I open JMeter in non GUI?**

For opening Apache JMeter in non GUI or CLI (command line )mode run Apache JMeter.bat (on Windows) or Apache JMeter (for Unix/Linux) file in bin directory, with –n flag.

Non GUI or CLI mode is used to run the test plans.

Bottom of Form

Top of Form

**Q.49What is JTL file in JMeter?**

JTL file in Apache JMeter, is the Apache JMeter Text Logs or JTL files. It stores result of the test runs.

JTL is the default extension and any other extension can also be selected before test execution.

If same JTL file is mentioned for different test runs, Apache JMeter appends resultant data at end of the same file.

Bottom of Form

Top of Form

**Q.50How do I record in JMeter?**

Apache JMeter can record tests by using the Test Script Recorder. The web browser used to record user actions, should be configured to use proxy server for web requests.

Steps for recording in Apache JMeter -

1.    Select Recording template in Apache JMeter GUI  
2.    Configure  HTTP Request Defaults element  
3.    Click Start button in HTTP(S) Test Script Recorder  
4.    Configure browser to use the Apache JMeter Proxy  
5.    Record user actions by clicking Run then, Start

Bottom of Form

Top of Form

**Q.51What is the latest JMeter version?**

The latest Apache JMeter version is 5.1.1, as on date and was released on 19-March, 2019.

The latest Apache JMeter version 5.1.1, requires Java 8 and above.

The Apache JMeter version 5.1.1 has further enhancement from the base version of Apache JMeter version 5

Apache JMeter is open source software and hence user can customize as per their needs.

Bottom of Form

Top of Form

**Q.52What is throughput in JMeter?**

Throughput is, number of incoming requests being served or successfully processed and output sent, as per set parameters, with in a time span like seconds or minutes or even hours.

As per Apache JMeter documentation,  throughput is requests/unit of time.

In Apache JMeter the unit of time taken for calculating the throughput, is from start of the first sample to the end of the last sample. This time span includes intervals between samples.

The Apache JMeter throughput formula is: Throughput = (number of requests) / (total time).

Bottom of Form

Top of Form

**Q.53What we can do with JMeter?**

We can do performance testing with Apache JMeter . Apache JMeter is an open source software application. Apache JMeter can do load testing of the functional behavior of the software application under test. Apache JMeter  also logs the test result for measuring the performance.

Apache JMeter can be used to test performance both on static and dynamic resources.

Apache JMeter has extensive usage in performance testing of web applications.

Bottom of Form

Top of Form

**Q.54How does JMeter calculate concurrent users?**

Concurrent users in Apache JMeter points to multiple users doing same operation at same time like 100s of users logging into software application, at same time or concurrently.

Number of threads in Apache JMeter simulates concurrent connection to the application under test. It can be configured in Apache JMeter test plan for conducting concurrent users test. Configure concurrent thread group for concurrent users in Apache JMeter.

Calculating concurrent users, is bit tricky as we can only guess the number of concurrent users and it will be good if we make a guess objectively.  Calculating concurrent users in Apache JMeter can be done by dividing unique visitors by their visit duration like 100 unique visitors per minute with 10 minutes per visit results in 10 concurrent user per minute (100/10).

Bottom of Form

Top of Form

**Q.55How many threads can JMeter handle?**

Apache JMeter can handle unlimited threads as it is influenced by hardware capabilities and test plan design.

Correctly sizing the number of threads in Apache JMeter prevents memory related issues

Distributed or cloud based testing can circumvent hardware capabilities but test plan design is crucial in threads Apache JMeter can handle.

We can specify Number of threads in Apache JMeter. Multiple threads simulate concurrent connection to application under test.

Bottom of Form

Top of Form

**Q.56What are JMeter threads?**

Apache JMeter thread execute test plan entirely and independently of other threads. Each Apache JMeter thread usually indicates a single user, interacting with application under test.

Apache JMeter thread is controlled by Apache JMeter thread group by setting following options

* Number of Apache JMeter threads
* Ramp up period for Apache JMeter thread
* Number of times test should be executed

Bottom of Form

Top of Form

**Q.57Can we integrate selenium with JMeter?**

Yes, Apache JMeter and Selenium can be integrated. Use Selenium in Apache JMeter, by making use of Apache JMeter WebDriver plugin.

Copy the files of WebDriver plugin to libs and ext directory of Apache JMeter. In Apache JMeter GUI, web browser specific tests can be executed like Chrome test / Firefox test, etc.

Bottom of Form

Top of Form

**Q.58What is JMeter load time?**

Load time usually refers to time needed to load a web page but in Apache JMeter it refers to elapsed time.

Load time or elapsed time in Apache JMeter is the total time before a request is sent and after the response is received.

Multiple threads simulate multiple connections or users, to application under test. Apache JMeter load time refers to request send by a thread and response received by the thread.

Apache JMeter load time = time after the response is received - time before a request is sent

Bottom of Form

Top of Form

**Q.59What is test plan and workbench in JMeter?**

Apache JMeter test plan stores all individual elements needed to run the test. It  has all elements and their configuration needed to execute test,  by Apache JMeter on application under test (AUT).    
  
A test plan has

* Thread group having multiple threads, simulating multiple connections / users. We can configure count of threads, ramp up period (time to activate all threads) and number of time to execute the test.
* Sampler – which send request and wait for response. Different types are as per need like HTTP/FTP/LDAP, etc
* Logic controller  - used to control when to send request
* Listener – gather test result and can output graph/results tree
* Timer – used to add delay
* Assertions – to check received response

Apache JMeter workbench is just a temporary location to store test elements during test execution. It is has no relation to test plan. Data stores in Apache JMeter workbench is not saved unless configured but, is not recommended.

Bottom of Form

Top of Form

**Q.60How popular is JMeter?**

Apache JMeter is very popular performance testing tool. It is open source and has huge following amongst software testers across the globe.

Apache JMeter is used by software development companies across the globe like IBM, Oracle, Capgemini, TCS, etc.

Bottom of Form

Top of Form

**Q.61Is JMeter a free tool?**

Yes, Apache JMeter is open source tool and there is no cost to purchase and no trial period for downloaded software. There is no licensing cost involved with Apache JMeter download or usage.

There is no limitation on usage being enforced by Apache Foundation on Apache JMeter.

Only cost involved for a company, is of training of the professionals, on the Apache JMeter.

# GCReddy 20Q: https://www.gcreddy.com/2021/09/jmeter-interview-questions-2.html

##### **1) What is JMeter?**

JMeter is a Performance Test Tool, other test tools for performance testing are, Micro Focus LoadRunner, IBM RPT, SilkPerformer, WebLoad, NeoLoad, OpenSTA etc…

Performance Testing is a non functional test type,

Load Testing, Stress Testing, Spike Testing, Endurance Testing and Volume Testing are the subsets of Performance Testing.

‘Apache JMeter’ is an open source, 100% Java based application with a graphical user interface. It is designed to analyse and measure the performance and load functional behaviour of web application and variety of services.

JMeter is mainly used for testing Web application or FTP application but currently, it is applicable in functional testing, JDBC database connections, Web services, generic TCP connections and OS native processes. You can perform various testing activities like Performance, Load, Stress, Regression and Functional testing, in order to get accurate performance metrics against your web server.

JMeter was originally written and developed by Stefano Mazzocchi of the Apache Software Foundation. It was primarily written to test the performance of Apache JServ(currently known as Apache Tomcat project).Apache redesigned JMeter to enhance the GUI, to add more features and functional testing capabilities.

JMeter is not a browser and it doesn’t render html pages like any browser does, rather it works on protocol level.

##### **2) What are the Features of JMeter?**

Some of the most important features of JMeter are listed below:

> Open source application: JMeter is a free open source application which facilitatesusers or developers to use thesource code for developmentof other applications.

> User-friendly GUI: JMeter comes with simple and interactive GUI.

> Support various testing approach: JMeter supports various testing approach like Load Testing, Distributed Testing, and Functional Testing, etc.

> Platform independent: JMeter is written and developed using java, so it can run on any environment / workstation that accepts a Java virtual machine, for example – Windows, Linux, Mac, etc.

> Support various server types: JMeter is highly extensible and capable to load the performance test in different server types:

Web: HTTP, HTTPS, SOAP,  
Database: JDBC, LDAP, JMS, and  
Mail: POP3.

> Support multi-protocol: JMeter supports protocols such as HTTP, JDBC, LDAP, SOAP, JMS, and FTP.

> Simulation: JMeter can simulate multiple users by using virtual users or unique users in order to generate heavy load against web application under test.

> Framework: JMeter is a multi-threading framework which allows concurrent and simultaneous sampling of different functions by many or separate thread groups.

> Remote distributed testing: JMeter has Master-Slave concept for distributed testing where master will distribute tests among all slaves and slaves will execute scripts against your server.

> Test result visualization: Test results can be viewed in different formats like graph, table, tree, and report etc.

##### **3) Name The Protocols Supported By JMeter?**

Following are some of the protocols supported by JMeter.

i. Web Protocol: To test the web applications, it supports both HTTP and HTTPS protocols.

ii. Web Services: To test web services applications, it supports both SOAP and REST.

iii. FTP: File Transfer Protocol provides the support for testing the FTP servers and applications.

iv. Database via JDBC: used for testing the database applications.

v. LDAP: Lightweight Directory Access Protocol

vi. Message-oriented middleware (MOM) via JMS

vii. Mail: used for testing of mail servers such as SMTP(S), POP3(S) and IMAP(S)

viii. MongoDB (NoSQL): it is recently supported protocol by JMeter.

ix. Native commands or shell scripts

x. TCP

##### **4) How to Install JMeter?**

JMeter is a pure Java application and should run correctly on any system that has a compatible Java implementation.

JMeter supports various Operating Environments:

Linux  
Windows  
Mac OS  
Ubuntu

Step 1) Install Java

Because JMeter is a pure Java desktop application, it requires a fully compliant JVM. You can download and install the latest version of Java Development Kit.

After installation is finished, you can use the following procedure to check whether Java JDK is installed successfully in your system

In Window/Linux, go to Terminal  
Enter command java -version

Step 2) Download Jmeter

Step 3) Installation

Installation of JMeter is extremely easy and simple. You simply unzip the zip/tar file into the directory where you want JMeter to be installed. There is no tedious installation screen to deal with! Simply unzip and you are done!

Step 4) Launch JMeter

You can start JMeter in 3 modes

GUI Mode  
Server Mode  
Command Line Mode

Start JMeter in GUI Mode

If you are using Window, just run the file /bin/jmeter.bat to start JMeter in GUI mode

##### **5) Explain The Basic Workflow Of JMeter?**

JMeter acts like a group of users sending requests to a target server. It collects response from target server and other statistics which depict the performance of the application or server via graphs or tables.

##### **6) What Is A Test Plan In JMeter? List Some Of The Test Plan Elements Available In JMeter.**

A Test Plan defines and provides a layout of how and what to test. JMeter can be used to prepare a Test Plan for the web application as well as the client-server application. It behaves like a container for running tests.

A complete Test Plan comprises of one or more of the following elements.

i. ThreadGroup  
ii. Controllers  
iii. Listeners  
iv. Timers  
v. Assertions  
vi. Configuration Elements  
vii. Pre-Processor Elements  
viii. Post-Processor Elements

A Test Plan should have at least one thread group.

##### **7) What are Regular Expressions in JMeter?**

Regular Expressions are used to search and manipulate text. JMeter is used for interpreting forms of regular expression or patterns being used throughout a JMeter test plan.

##### **8) What is the Execution Order of Test Elements?**

The execution order of Test Elements is in the following sequence:

Configuration elements  
Pre-Processors  
Timers  
Sampler  
Post-Processors (unless SampleResult is null)  
Assertions (unless SampleResult is null)  
Listeners (unless SampleResult is null)

##### **9) What are Samplers?**

Samplers – Sampler generates one or more sample results. These sample results have many attributes like elapsed time, data size, etc. It allows JMeter to send specific types of requests to the server, through samplers, thread group decides which type of request it need to make. Some of the useful samplers are HTTP request, FTP request, JDBC request etc.

##### **10) What are Thread Groups?**

Thread Group is an important element of JMeter, where you can set number of users and time to load all the users given in the thread group.

A Test Plan should have at least one thread group.

##### **11) What is a Timer in JMeter? What are the types of it?**

A JMeter thread by default will send requests continuously without any pause. Timers are used to get a pause between the request.

The different types of Timer in JMeter are:

Constant Timer – This element delays each request in a Thread Group for the same amount of time.

Gaussian Timer – This element is used to delay each user request for a random period of time.

Synchronizing Timer – This element is used to release number of threads at given point.

Uniform Random Timer – This element is used to delay each request for a random period of time.

##### **12) What is Assertion in JMeter? List the types of Assertion.**

Assertion helps to verify that your server under test returns the expected results.

The Types of Assertion include:

Response Assertion – It facilitates the user by comparing the server response against a string pattern to check that the result is as expected.

Duration Assertion – You may need to test the response from the server reaches in user-defined time. If it takes longer than the defined time, server response fails.

Size Assertion – It is to test that each response coming from server holds the expected number of bytes. It facilitates the user to specify the size.

XML Assertion – It verifies that the response coming from the server holds the data in a correct XML format.

HTML Assertion – It is helpful for checking the syntax of the response data.

##### **13) What are Configuration Elements?**

Configuration Elements help you to create defaults and variables to be used by Samplers. They are also used to add or modify requests made by Samplers. These elements are executed at the start of the scope of which they are part. Therefore, a Configuration Element is accessed only from inside the branch where it is placed.

##### **14) How to reduce the resource requirement in JMeter?**

To reduce the resource requirements in JMeter:

> Use non-GUI mode.

> During the load, test doesn’t use “view results tree” or “view results in table” listeners. It is used only during scripting phase.

> Don’t use functional mode.

> Do not use similar samplers. Instead, use the same sampler in loop and use variable to vary the sample.

##### **15) What is Distributed Load Testing & how to achieve it?**

Distributed load testing is the process through which numerous systems can be used for simulating a load of a large number of users. JMeter can do distribute load testing with the help of master-slave configuration.

##### **16) What is the use of co-relation in JMeter?**

Co-relation is a process in which values can be extracted from the server response and stored in a variable and then can be used in any other request which is to follow.

For Example, for testing any login functionality if you have to use session ID/cookie ID , you can extract the value from the response of GET request of the login page and then dynamically use the same while making POST request for login.

##### **17) Can JMeter record actions from Mobile? If yes, how?**

Yes, Jmeter can record HTTP or HTTPS requests going to the server from your mobile application also. Mobile and Jmeter should be on the same network.

##### **18) Do we use Variables and Functions in JMeter?**

Just as in any other programming language, variables and functions are used in Jmeter also in order to make the scripts reusable.

##### **19) Is it possible to run Selenium scripts in JMeter? If yes, how?**

Yes, it is possible to run Selenium scripts in Jmeter to get some ideas on their performance.

There are two ways of doing it. Either you can use Junit libraries to build Selenium scripts and save as Jars and copy the same in the Jmeter directory. And then add Junit sampler to your test plan and import the Jar file.

Otherwise, Webdriver sampler plugin can be added in the JMeter ext folder and then restart the Jmeter. Write your selenium code in the Webdriver sampler and then execute to see the performance.

##### **20) Explain how you can perform spike testing in JMeter?**

By synchronizing, timer JMeter spike Testing can be achieved. Synchronizing timer blocks thread until a specific amount of threads has been blocked and then release them all together thus creating large instantaneous load.

# STM 40Q: <https://www.softwaretestingmaterial.com/jmeter-interview-questions/>

### ****#1. What is JMeter?****

JMeter is an open-source software application used to conduct performance and load testing client/server applications. With the help of JMeter, you can generate complex reports, which tell you what exactly is wrong or not with your website or web application.

***Must Read:***[***JMeter Alternatives***](https://www.softwaretestingmaterial.com/jmeter-alternatives/)

### ****#2. How JMeter works?****

It works like a group of users sending requests to a target server. This tool collects responses from the target server and other statistics which show the performance of the application or server via graphs or tables in order to check the performance of an application.

### ****#3. Explain regular expressions used in JMeter?****

In Jmeter, regular Expression is used to search and manipulate text. It is used to extract some values dynamically from the responses with an objective to use it in a subsequent request or save it for the purpose of reporting. Regular Expression is used in both Pre-Processors as well as Post Processors.

### ****#4. What does “contains” and “matches” indicate in the regular expression?****

Contains in the regular expression means that the regular expression matched at least some part of the target.  
While matches in the regular expression mean that the regular expression should match the whole target.

### ****#5. What are Listeners?****

Listeners are used to storing the execution results of load testing in the form of tables, graphs, trees, log files or in any other format which can be presented to the stakeholders. These listeners can be adjusted anywhere in the test, including directly under the test plan.

### ****#6. Name some JMeter listeners****

Some of the JMeter listeners are as follows

* Spline Visualizer
* Aggregate Report
* Aggregate Graph
* Assertion Results
* View Results Tree
* View Result in Table
* Monitor Results
* Response Time Graph
* Distribution Graph
* BeanShell Listener
* Summary Report
* Backend Listener
* Comparison Assertion Visualizer
* Graph Results
* Mailer Visualizer
* Save responses to a file
* Simple data writer
* JSR223 Listener

### ****#7. What are the various types of processors used in JMeter?****

There are two types of processer in JMeter

* Pre-processor
* Post-processor

### ****#8. What are JMeter PreProcessors?****

JMeter Pre-processor is used to execute actions before the sampler requests are executed in the test scenario. These are used to configure a timeout between sampler execution or before test data generation, or fetching data from a database based on the needs of performance testing.

### ****#9. Mention some pre-processor elements?****

Some of the pre-processor elements include

* Beanshell PreProcessor
* BSF PreProcessor
* HTML Link Parser
* HTTP URL Re-writing Modifier
* JDBC PreProcessor
* JSR223 PreProcessor
* RegEx User Parameters
* Sample Timeout
* User Parameters

### ****#10. What is Post-processor?****

JMeter Post-processors are used to perform certain actions after the processing of a sampler request. These are used to get the response or gather data into a variable for later use.

### ****#11. Mention some pre-processor elements?****

Some of the postprocessor elements include

* Beanshell PostProcessor
* BSF PostProcessor
* CSS/JQuery Extractor
* Debug PostProcessor
* JDBC PostProcessor
* JSON Path PostProcessor
* JSR223 PostProcessor
* Regular Expression Extractor
* Result Status Action Handler
* XPath Extractor

### ****#12. What types of testing can you perform on JMeter?****

Apache JMeter is used to test the performance of static resources (HTML, and JavaScript) and dynamic resources (AJAX, JSP, and Servlets). We can use this tool to perform load testing and stress testing of a web application.

### ****#13. Name the protocols supported by JMeter?****

The protocols supported by JMeter are as follows:

* Web Protocol: It supports both HTTP and HTTPS sites. Used to test web applications.
* Web Services: It supports both SOAP and REST. Used to test web services applications.
* Database via JDBC drivers used for testing the database applications.
* Directory: LDAP (Lightweight Directory Access Protocol).
* Mail Service: used for testing of mail servers such as POP3, IMAP, SMTP.
* Message-oriented middleware (MOM) service via JMS.
* File Transfer Protocol provides the support for testing the FTP servers and applications.
* MongoDB (NoSQL).
* Native commands or shell scripts.
* TCP.

### ****#14. What is a Test Plan in JMeter?****

A test plan can be viewed as a container for running tests on JMeter. It describes a series of steps JMeter will execute when run the tests like what to test and how to execute them.

### ****#15. List some of the test plan elements in JMeter?****

A complete test plan consists of one or more elements such as

* Thread Groups
* Logic controllers
* Sample generating controllers
* Listeners
* Timers
* Assertions
* Configuration elements

### ****#16. What is a Workbench?****

JMeter workbench is just a temporary storage location to store test elements that can be added to a test plan. JMeter will not save the components of the workbench unless configured. They have to be saved separately as test fragments.

### ****#17. What is the execution order of Test Elements in the test plan of JMeter?****

The test plans elements execution order is as follows:

* Configuration elements
* Pre-processors
* Timers
* Samplers
* Post-processors (unless SampleResult is null)
* Assertions (unless SampleResult is null)
* Listeners (unless SampleResult is null)

### ****#18. What is a Timer in JMeter?****

JMeter thread naturally sends requests without applying any delay between each sampler/request. Timers are utilized to get a pause between the requests. If we perform load testing or stress testing on a server without any delay, it will create a server overload problem. Timer in JMeter solves the server overload issues.

### ****#19. What are the types of Timer in JMeter?****

The various sorts of Timer in JMeter are:

* Constant Timer
* Gaussian Random Timer
* Synchronizing Timer
* Uniform Random Timer
* Poisson Random Timer
* Beanshell Timer
* BSF Timer
* Constant Throughput Timer
* JSR223 Timer

### ****#20. What are Samples in JMeter?****

It generates one or more sample results. These sample results have various features like data size, elapsed time, etc. JMeter sends specific types of requests to the server; with the help of samplers, the thread group decides which request is required to make. Some of the common samplers used are HTTP request, JDBC request, FTP request, etc.,

### ****#21. What are Thread Groups in JMeter?****

Thread groups are an important element of JMeter. Here, you can set the number of users and time to load all the users given in the thread group. A test plan must have at least one thread group. The controls for a thread group allow you to set the number of threads, ramp-up period, and a number of times to execute the test.

### ****#22. What is a Test Fragment in JMeter?****

It is a sort of element like Thread Group that helps to set up the module-based approach while creating the script of a large flow. The single distinction is that the test fragment isn’t executed except if it is referred to by either a **Module controller** or an **Include controller**.

### ****#23. What is the Module controller in JMeter?****

The Module Controller in JMeter allows you to switch between the controller (contains child elements) of the test plan. These controllers can either be placed in Thread Group or in Workbench.

### ****#24. What is the Include controller in JMeter?****

The Include controller is designed to use an external JMX file. The Include Controller in JMeter allows you to use multiple test plans.

### ****#25. What are functions and variables in JMeter?****

JMeter functions are special values that can populate fields of any Sampler or other element in a test tree.

A function call looks like this:



|  |  |
| --- | --- |
| 1 | ${\_\_functionName(var1,var2,var3)} |

JMeter provides user-defined static values (or variables), and built-in functions to perform different actions.

Functions and variables can be written into any field of any test component in order to make the script reusable.

Syntax of Variable:



|  |  |
| --- | --- |
| 1 | ${VARIABLE} |

### ****#26. What JMeter does if an undefined function or variable is referenced?****

If an undefined function or variable is referenced, JMeter does not report/log an error – the reference is returned unchanged. For example if STM is not defined as a variable, then the value of ${STM} is ${STM}.

### ****#27. What is Assertion in JMeter? What are the types of assertion?****

Assertion assists with confirming that your server under test returns the expected results.

Some commonly used Assertion in JMeter are as follows.

* **Response Assertion:** It facilitates the users by comparing the server response against a string pattern to verify that the result is as expected or not.
* **Size Assertion:** It tests every response coming from the server holds the expected number of bytes. It helps the user to determine the size i.e., equal to, not equal to, greater than, or less than a given number of bytes.
* **Duration Assertion:** You may have to test the response from the server reaches in user-defined time. Server response becomes fail, if it takes longer than the user-defined time.
* **XML Assertion:** It checks that the response coming from the server holds the data in the right XML format.
* **HTML Assertion:** It is useful to verify the syntax of the response data.

### ****#28. How would you ensure re-usability in your JMeter scripts?****

By following the below points we can guarantee re-usability in the test scripts:

* Utilizing config elements like “CSV data set Config”, “User-Defined Variables”, and so forth for supporting greater data reuse.
* Modularizing shared tasks and invoking them through a “Module Controller”.
* Creating your own BeanShell functions, and reuse them.

### ****#29. What are the types of Controllers in JMeter?****

The two kinds of Controllers in JMeter are:

**Samplers Controllers:** Samplers enable JMeter to send certain kinds of requests to a server. They stimulate a user’s requests for a page from the target server.

**Logical Controllers:** These controllers let you control the order of processing of Samplers in a Thread. It can change the order of requests coming from any of their child elements.

### ****#30. What is Spike Testing in JMeter?****

Suddenly increasing the number of users at a certain point of application and afterward checking its behavior at that interval is Spike testing.

### ****#31. How to perform Spike Testing in JMeter?****

In JMeter, Spike testing can be performed utilizing Synchronizing Timer. This timer continues obstructing the threads until a specific number of threads get reserved. It releases them at the same time hence making a large instantaneous load.

### ****#32. What are the uses of Monitor Test?****

Some of the uses of Monitor Test are:

* It is useful for system management and stress testing.
* It also gives additional information about server performance when used with stress testing.
* Monitors make it easy to see the connection between server performance and response time on the client-side.
* As a system administration tool, it also provides a simple method to monitor multiple servers from one console.

### ****#33. What are the important plugins supported in JMeter?****

JMeter supports different types of plugins that help in generating high-quality results. Some of the important plugins supported in JMeter are as follows.

* Thread group Plugin
* Listeners Plugin
* Samplers Plugin

### ****#34. What is Data Parameterization and what are the different ways of Data Parameterization in JMeter?****

Data Parameterization allows us to reusable the scripts. We can pass different parameters for the same request without hardcoding the values in the script.

It can be done using the CSV Data Set Config file or User Defined Variables.

### ****#35. What are the differences between JMeter and LoadRunner?****

| **JMeter** | **LoadRunner** |
| --- | --- |
| Open source tool | Licensed software |
| It is developed by Apache | It is developed by Mercury |
| It lacks in User Interface | Its UI is very impressive |
| Less technical sound when compared to LoadRunner | It has more technical capabilities |
| It doesn't support SAP & Siebel | It supports SAP, Siebel & PeopleSoft |

### ****#36. Can we integrate selenium with JMeter?****

Apache JMeter and Selenium can be integrated by adding the WebDriver sampler plugin in the JMeter ext folder and then restart the Jmeter. We can then write the selenium code in the Webdriver sampler and then execute it to see the performance.

### ****#37. What are the differences between JMeter and Selenium?****

| **JMeter** | **Selenium** |
| --- | --- |
| JMeter is a open-source tool that supports performance testing | Selenium is a open source tool that mainly supports web browser integration testing |
| It doesn’t extend support to cross browser testing | It supports wide range of browsers for cross browser testing |
| It is suitable for performance and stress testing of applications | It is suitable for more complex testing such as production monitoring and load testing |
| Browser is not required to run JMeter | Browser is required to run Selenium |
| It supports distributed testing. | To support distributed testing we need to use an extension ie., Selenium Grid. |

### ****#38. What is Distributed Load Testing?****

Distributed load testing is the process of simulating huge workload of a large number of users using multiple systems. Multiple systems are used for distributed load testing because a single system cannot generate a large number of users (threads). Master-Slave configuration is used for achieving load testing in JMeter.

### ****#39. How would you do master-slave configuration in JMeter?****

Master-slave configuration is considered as a part of Distributed Testing in which more than one machine is used to perform load testing of the server under test. All the machines should be in the same network and have same JMeter version installed. The configuration is done such a way that one machine as Master and others as Slaves.

Steps to perform Master-Slave configuration in JMeter are as follows.

1. Master Machine – Edit the jmeter.properties file and add the IP addresses of all the slave machines against the remote\_host field in the file.
2. Save the file and launch the JMeter again.
3. From the RUN menu in JMeter, select Remote Start and choose the IP of the machine to be invoked.
4. Choose RUN menu and select Remote Start all to start all the slave machines for your testing.

### ****#40. How can you reduce resource requirements in JMeter?****

Following are some suggestion to reduce resource requirements in JMeter:

* Utilize non-GUI mode.
* Use as few Listeners as possible
* Disables listeners such as “View Results Tree” or “View Results in Table”. It consumes a lot of memory and leads to JMeter running out of memory or console freezing.
* Try not to utilize functional mode.
* Instead of using lots of similar samplers, use the same sampler in a loop and use variables (CSV Data Set) to vary the sample. Or perhaps use the Access Log Sampler.
* Use CSV output rather than XML.
* Try to use as few Assertions as possible.
* Store the data only which is necessary.
* Disable all JMeter graphs as they consume a lot of memory. Still, you can view the real time graphs using the JTL tab in the web interface.
* Clear the files tab before every test run.
* Try to erase the local path from CSV Data Set Config when used. Access Log Sampler.