**1. What is the JSP tag? In JSP tags can be divided into four different types.**

1. Directives
2. Declarations
3. Scriplets
4. Expressions

**2. How to access web.xml init parameters from JSP page?** For example, if you have:

<context-param> <param-name>Id</param-name> <param-value>this is the value</param-value></context-param>

You can access this parameter: - **Id: <h: outputText value=”# {initParam [‘Id’]}”/>**

**3. What are JSP Directives?**

* **page Directives** <%@page language=”java” %>
* **include Directives:** <%@ include file=”/header.jsp” %>
* **taglib Directives** <%@ taglib uri=”tlds/taglib.tld” prefix=”html” %>

**4. What is action mapping?** The ActionMapping represents the information that the ActionServlet knows about the mapping of a particular request to an instance of a particular Action class. The mapping is passed to the execute () method of the Action class, enabling access to this information directly.

**5. What is the functionality of ActionServlet and RequestProcessor?**

1. Receiving the HttpServletRequest
2. Populating JavaBean from the request parameters
3. Displaying response on the web page Issues
4. Content type issues handling
5. Provide extension points

**6. What is a servlet?** Servlets is a server-side component that provides a powerful mechanism for developing server side programs. Servlets is a server, as well as platform-independent and Servlets, are designed for various protocols. Most commonly used HTTP protocols. Servlets use the classes in the java packages **javax.servlet, javax.servlet.http.HttpServletRequest, javax.servlet.http.HttpServletResponse, javax.servlet.http.HttpSession.** All servlets must implement the Servlet interface, which defines life-cycle methods.

**7. Servlet is pure java object or not?** Yes, pure java object.

**8. What must be implemented by all Servlets?** The Servlet Interface must be implemented by all servlets

**9. What are the phases of the servlet life cycle?** The life cycle of a servlet consists of the following phases:

1. Servlet class loading
2. Servlet instantiation
3. the init method
4. Request handling (call the service method)
5. Removal from service (call the destroy method)

**10. Explain JSP and tell its uses.** JSP stands for Java Server Pages. It is a presentation layer technology independent of platform. They are like HTML pages but with Java code pieces embedded in them. They are saved with a .jsp extension. They are compiled using JSP compiler in the background and generate a Servlet from the page.

**11. What is the requirement of a tag library?** A collection of custom tags is called a Tag Library. Recurring tasks are handled more easily and reused across multiple applications to increase productivity. They are used by Web Application designers who focus on presentation rather than accessing database or other services. Some popular libraries are String tag library and Apache display tag library.

**12. Explain JSP Technology.** JSP is a standard extension of Java and is defined on top of Servlet extensions. Its goal is to simplify management and creation of dynamic web pages. It is platform-independent, secure, and it makes use of Java as a server side scripting language.

**13. Explain implicit objects in JSP.** Objects created by web container and contain information regarding a particular request, application or page are called Implicit Objects. They are:

1) response

2) exception

3) application

4) request

5) session

6) page

7) out

8) config

9) pageContext

**14. How can multiple submits due to refresh button clicks be prevented?** Using a Post/Redirect/Get

1. A form filled by the user is submitted to the server using POST or GET method. The state in the database and business model are updated.

2. A redirect response is used to reply by the servlet for a view page.

3. A view is loaded by the browser using the GET command and no user data is sent. This is safe from multiple submits as it is a separate JSP page.

**15. Is JSP technology extensible?** Yes, JSP is easily extensible by use and modification of tags, or custom actions, encapsulated in tag libraries.

**16. Differentiate between response.sendRedirect (url) and <jsp: forward page = …>.**

**<jsp.forward>** element forwards the request object from 1 JSP file to another. Target file can be HTML, servlet or another JSP file, but it should be in the same application context as forwarding JSP file.

**sendRedirect** send HTTP temporary redirect response to the browser. The browser then creates a new request for the redirected page. It kills the session variables.

**17. Can a subsequent request be accessed with one’s servlet code, if a request attribute is already sent in his JSP?** The request goes out of scope, thus, it cannot be accessed. However, if a request attribute is set in one’s servlet, then it can be accessed in his JSP.A JSP is a server side component and the page in translated to a Java servlet, and then executed. Only HTML code is given as output.

**18. How to include static files in a JSP page?** Static pages are always included using JSP include directive. This way the inclusion is performed in the translation phase once. Note that a relative URL must be supplied for file attribute. Although static resources may be included, it is not preferred as each request requires inclusion.

**19. Why is it that JComponents have add () and remove () methods but Component doesn’t?** JComponent is a subclass of Container. It contains other Components and JComponents.

**20. How can a thread safe JSP page be implemented?** It can be done by having them implemented by the SingleThreadModel Interface. Add <%@page isThreadSafe=”false” %> directive in the JSP page.

**21. How can the output of JSP or servlet page be prevented from being cached by the browser?**

Using appropriate HTTP header attributes to prevent the dynamic content output by a JSP page from being cached by the browser.

**22. How to restrict page errors display in a JSP page?** By setting up an “ErrorPage” attribute of PAGE directory to the name of the error page in the JSP page, and then in the error jsp page set “isErrorpage=”TRUE”, Errors can be stopped from getting displayed.

**23. What are JSP Actions?** They are XML tags, which direct the server to using existing components or control behavior of JSP Engine. They consist of a typical prefix of “jsp:” and action name.

**<jsp: include/>**

**<jsp: getProperty/>**

**<jsp: forward/>**

**<jsp: setProperty/>**

**<jsp: usebean/>**

**<jsp: plugin/>**

**24. Differentiate between <jsp: include page=…> and <%@include file=…>.** Both these tags include information from 1 page to another. The first tag acts as a function call between two Jsp’s. It is executed each time client page is accessed by the client. It is useful to modularize the web application. New content is included in the output. The second tag content of file is textually embedded having similar directive. The changed content is not included in the output. It is helpful when code from one jsp is required by several jsp’s.

**25. Can constructor be used instead of init (), to initialize servlet?** Yes, it is possible. But it is not preferred because init () was developed because earlier Java versions could not invoke constructors with arguments dynamically. So they could not assign a servletConfig. Today, however, servlet containers still call only no-arg constructor. So there is no access to servletContext or servletConfig.

**26. Explain lifecycle methods.**

**1) jsplnit ():** The container calls this to initialize servlet instance. It is called only once for the servlet instance and preceded every other method.

**2) \_jspService ():** The container calls this for each request and passes it on to the objects.

**3) jspDestroy ():** It is called by the container just before destruction of the instance.

**27. Explain JSP Output comments?** They are comments that can be viewed in HTML Source File.

**29. Define Expression: -** Expression tag is used to insert Java values directly in the output. Its syntax is <%=expression %> It contains a scripting language expression that is evaluated, then converted to a string, and then inserted where the expression comes in JSP file.

**30. Define Composition.** Composition has a stronger relationship with the object than Aggregation.

**31. Define JSP Scriptlet.** It a JSP tag that encloses Java code in JSP pages. Their syntax is <% %>. Code written in Scriptlet executes every time the program is run.

**32. How can information from one JSP be passed to another JSP?** The tag <Jsp:param> allows us to pass information between multiple Jsp’s.

**33. Explain the uses of <jsp: usebean> tag.**

**<jsp:usebean>**

**id="beanInstName"**

**scope= "page | application"**

**class="ABC.class"  type="ABC.class"**

**</jsp: usebean>**

This tag creates an instance of java bean. It firstly tries to find if bean instance already exist and assign stores a reference in the variable. Type is also specified; otherwise it instantiates from the specified class storing a reference in the new variable.

**34. Explain handling of runtime exceptions.** Errorpage attribute is used to uncatch the run-time exceptions forwarded automatically to an error processing page. It redirects the browser to JSP page error.jsp if any uncaught exception is faces during request handling. It is an error processing page.

**35. Why does \_jspService () start with a ‘\_’ but other lifecycle methods do not?** Whatever content made in a jsp page goes inside the \_jspService () method by the container. If it is override, the compiler gives an error, but the other 2 lifecycles can be easily override. So ‘\_’ shows that we cannot override this method.

**36. Explain the various scope values for <jsp: usebean> tag.** <jsp: usebean> tag is used to use any java object in the jsp page. Some scope values are:

1) application

2) request

3) page

4) session

**37. Show the 2 types of comments in JSP.** The 2 types are:

1. **<%–JSP Comment–%>**
2. **<!–HTML comment–>**

**39. Explain JSP directives.** JSP directives are messages to JSP Engine. They serve as a message from page to container and control the processing of the entire page. They can set global values like class declaration. They do not produce output and are enclosed in < %@….%>

**40. Explain page Directives.** Page Directives inform the JSP Engine about headers and facilities that the page receives from the environment. It is found at the top of all JSP pages. Its syntax is <%@ page attribute=”value”>

**41. Show attributes of page directives.**

**1)** **Session :** It shows if a session data is available to the page.

**2)** **Import :** it shows packages that are imported.

**3) isELIgnored :** It shows whether EL expressions are ignored when JSP translates into a servlet.

**4) contentType :** it allows the user to specify the content type of page.

**42. What is Include directive?** They include directive statically inserts the contents of a resource into the current JSP. It helps in the reuse of code without duplication. And includes contents of the file at translation time. Its syntax is as follows <%@ include file=”Filename” %>.

**43. What are standard actions in JSP?** They affect overall runtime behavior of a page and response sent to the client. They are used to include a file at request time, to instantiate a JavaBean or find one. They are also used to generate a browser-specific code or forward a request to a new page.

**44. Explain the jsp: setProperty action.** It is used to give values to properties of beans that have been referenced beforehand. <jsp: useBean id=”ABC”…/> … <jsp: setProperty name=”ABC” property=”myProperty”…

* jsp:setproperty is executed even if a new bean is instantiated or existing bean is found.
* By adding </jsp.useBean> at the end of the code, the condition for execution is inverted i.e. It is not executed if existing object was found and only if a new object was instantiated.

**46. Explain jsp: plugin action.** This action helps in insertion of a specific object in the browser or embed the element needed to specify the running of applet using Java plugin.

**47. Explain client and server side validation.** JavaScript is used for the client-side validation. It takes place within the browser. JavaScript is used to submit the form data if validation is successful. Validation errors require no extra network trip because form cannot be submitted. Validation is also carried out in the server after submission. If validation fails, extra network trip is required to resend the form to the client.

**48. What is Translation Phase?** JSP engine translates and compiles a JSP file to a servlet. This servlet moves to the execution phase where requests and responses are handled. They are compiled for the first time they are accessed unless manually compiled ahead of time. The manual or explicit compilation is useful for long and convoluted programs.

**49. Perform a Browser Redirection from a JSP Page. <% response.sendRedirect (URL); %>**

Or we can change the location of the HTTP header attribute as follows:

**<% response.setStatus (HttpServletResponse.SC\_MOVED\_PERMANENTLY); response.setHeader (URL); %>**

**50. Give uses of Object Cloning.** Object cloning is used to create an exact copy of an object by typing the same code or using various other techniques.

**51. How to forward a request to another source. <jsp: forward page="/Page2.jsp" />**

**52. How can Automatic creation of session be prevented in a JSP page?** JSP page automatically create sessions for requests. By typing the following, it can be avoided. **<%@ page session=”false” %>**

**53. How can you avoid Scriptlet code in JSP?** JavaBeans or Custom Tags can be used instead of Scriptlet code.

**54. Explain the jspDestroy () method.** Whenever a JSP page is about to be destroyed, the container invokes the jspDestroy () method from the javax.servlet.jsp.JspPage interface. Servlets destroy methods are similar to it. It can be easily overridden to perform cleanup, like when closing a database connection.

**55. Explain the <jsp: param> action.** It is an action used with include or forward standard actions. It helps in passing the parameter names and values to a resource.

**57. How to disable scripting?** Scripting can be easily disabled by setting scripting-invalid element of the deployment descriptor to true. It is a sub-element of property group. It can be false as well.

**58. Define JSP Declaration.** JSP Declaration are tags used in declaring variables. They are enclosed in < %!%> Tag. They are used in declaring functions and variables.

<%@page contentType=”text/html” %>

 <html><body>

 <%!

  int a=0;

  private int getCount(){

  a++;

  return a;

 }

 %>

 <p>Values of a are:</p>

 <p><%=getCount()%></p>

 </body> </html>

**59. How can HTML Output be prevented from being cached?**

<% response.setHeader(“Cache-Control”, “no=store”);

  response.setDateHeader(“Expires”, 0);

 %>

**60. How is JSP better than Servlet technology?** JSP is a technology on the server’s side to make content generation simple. They are document centric, whereas servlets are programs. A Java server page can contain fragments of Java program, which execute and instantiate Java classes. However, they occur inside HTML template file. It provides the framework for development of a Web Application.

**61.** **What is the difference between Servlet and Filter?** **A filter is an object** that can transform the header and content (or both) of a request or response. Filters differ from web components in that filters usually do not themselves create a response. Instead, a filter provides functionality that can be “attached” to any kind of web resource. Consequently, a filter should not have any dependencies on a web resource for which it is acting as a filter; this way it can be composed with more than one type of web resource.

**The main tasks that a filter can perform are as follows:**

1) Query the request and act accordingly.  
2) Block the request-and-response pair from passing any further.  
3) Modify the request headers and data. You do this by providing a customized version of the request.  
4) Modify the response headers and data. You do this by providing a customized version of the response.  
5) Interact with external resources.

**Servlet is used for** performing the action which needs to be taken for particular request like user login, get the response based on user role, interacts with database for getting the data, business logic execution, etc.

**62.** **Can we call servlet destroy () from service ()?**destroy () is part of servlet life cycle methods, it is used to kill the servlet instance. Servlet Engine is used to call destroy (). In case, if you call destroy method from service (), it just execute the code written in the destroy (), but it won’t kill the servlet instance. Destroy () will be called before killing the servlet instance by servlet engine.

**63.** **How to destroy the session in servlets?** By calling invalidate () method on session object, we can destroy the session.

**64.** **What is servlet context?** The servlet context is an interface which helps to communicate with other servlets. It contains information about the Web application and container. It is kind of application environment. Using the context, a servlet can obtain URL references to resources, and store attributes that other servlets in the context can use.

**65.** **What is difference between ServletOutputStream and PrintWriter?**

* **ServletOutputStream:** ServletResponse.getOutputStream () returns a ServletOutputStream suitable for writing binary data in the response. The servlet container does not encode the binary data, it sends the raw data as it is.
* **PrintWriter:** ServletResponse.getWriter () returns PrintWriter object which sends character text to the client. The PrintWriter uses the character encoding returned by getCharacterEncoding (). If the response's character encoding has not been specified then it does default character encoding.