

✔ **PART I: Short Questions (Exercise Answers)**

**Q1. Define JSP.**

- **JSP (Java Server Pages)** is a technology that allows developers to create **dynamic web pages** using Java code embedded in HTML.
- Example: login.jsp for validating users.

**Q2. Enlist Features of JSP.**

1. Easy to use (Java code + HTML).
2. Platform independent.
3. Supports reusable components (tags, beans).
4. Provides implicit objects (request, response, session).
5. Faster development compared to Servlets.

**Q3. Define Life Cycle of JSP.**

- JSP Life Cycle is the **process of converting a JSP page into a servlet** and executing it.

**Q4. Enlist the steps of JSP Life Cycle.**

1. Translation of JSP to Servlet.
2. Compilation of Servlet.
3. Loading the Servlet class.
4. Instantiation of Servlet.
5. Initialization (jspInit()).
6. Request Processing (\_jspService()).
7. Destruction (jspDestroy()).

**Q5. What is Instantiation in JSP Life Cycle?**

- Instantiation means **creating an object** of the translated JSP servlet class before execution.

**Q6. What is JSP Expression Tag?**

- Expression tag is used to **print output** directly on a webpage.
- Syntax: `<%= expression %>`
- Example:

`<%= "Welcome " + name %>`

**Q7. What is JSP Declaration Tag?**

- Declaration tag is used to **declare variables and methods** in JSP.
- Syntax: `<%! code %>`
- Example:

`<%! int count = 0; %>`

**Q8. Difference between JSP Scriptlet tag and Declaration tag.**

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Feature	Scriptlet Tag <% %>	Declaration Tag <%! %>
Purpose	Contains Java code that runs	Declares variables/methods
Execution	Runs inside _jspService()	Outside _jspService()
Example	<% int x=5; %>	<%! int y=10; %>

### Q9. What is JSP Standard Action?

- Standard actions are **predefined tags** in JSP used to control behavior and manage resources.
- Example: <jsp:include>, <jsp:forward>.

### Q10. Write any two JSP Action Tags with Description.

1. <jsp:include> → Includes another file (HTML/JSP).
2. <jsp:include page="header.jsp" />
3. <jsp:forward> → Forwards request to another page.
4. <jsp:forward page="welcome.jsp" />

## ✔ PART II: Long Questions (Exercise Answers)

### Q1. Write a note on JSP Life Cycle.

- JSP page execution passes through these stages:
  1. **Translation:** JSP → Servlet.
  2. **Compilation:** Servlet compiled into .class.
  3. **Loading:** Servlet class loaded into memory.
  4. **Instantiation:** Object of servlet created.
  5. **Initialization:** jsplnit() method executed.
  6. **Execution:** \_jspService() method called for requests.
  7. **Destruction:** jspDestroy() called before removal.

### Q2. Write a note on JSP Elements.

JSP provides 3 main elements:

#### 1. Scripting Elements

- Scriptlet: <% code %>
- Declaration: <%! code %>
- Expression: <%= code %>

#### 2. Directives

- Provide instructions to JSP engine.
- Example: <%@ page language="java" %>

#### 3. Actions

- Predefined tags to control flow.
- Example: <jsp:include>, <jsp:useBean>.

### Q3. Discuss JSP Standard Actions.

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- JSP Standard Actions are predefined tags that **simplify common tasks**.
- Examples:
  - `<jsp:include>` → Reuse code by including files.
  - `<jsp:forward>` → Redirects request to another JSP/Servlet.
  - `<jsp:useBean>` → Creates/uses JavaBeans object.
  - `<jsp:setProperty>` → Sets property in a bean.
  - `<jsp:getProperty>` → Gets property from a bean.

### ★ Extra Important Short Questions with Answers

#### Q1. What is the difference between JSP and Servlet?

- Servlet → Java code inside class.
- JSP → Java code inside HTML.

#### Q2. What are JSP Implicit Objects?

- Predefined objects available in JSP.
- Examples: request, response, session, application, out.

#### Q3. What is JSP Scriptlet?

- Java code inside `<% %>` tags.
- Example:

```
<% int x=10; out.print(x); %>
```

#### Q4. What is the use of `jspInit()` and `jspDestroy()` methods?

- `jspInit()` → Runs once, initializes resources.
- `jspDestroy()` → Runs before destruction, releases resources.

#### Q5. What is a JSP Directive?

- Special instruction to JSP engine.
- Example:

```
<%@ page language="java" contentType="text/html" %>
```

### ★ Extra Important Long Questions with Answers

#### Q1. Differentiate between JSP Scripting Elements.

Element	Syntax	Use
Scriptlet	<code>&lt;% code %&gt;</code>	Executes Java code
Declaration	<code>&lt;%! code %&gt;</code>	Declares variables/methods
Expression	<code>&lt;%= code %&gt;</code>	Outputs result

#### Q2. Explain Advantages of JSP.

1. Easier to use than servlets.
2. Supports reusability with beans & tags.

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3. Automatic page compilation by server.
4. Provides implicit objects.
5. Can separate presentation & business logic.

### Q3. Write a note on JSP Implicit Objects with examples.

- **request** → Holds client request data.
- **response** → Sends response to client.
- **session** → Stores user session data.
- **application** → Data shared across application.
- **out** → Used to output data.
- Example:

```
<%= request.getParameter("username") %>
```