

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

**Q1. What is a Session?**

- A **session** is a way to **store user information** across multiple requests.
- Example: When you log in to Gmail, your login session remains active until logout.

**Q2. What is Cookies?**

- A **cookie** is a small piece of data stored on the client's browser by the server.
- Used for **tracking, preferences, and sessions**.

**Q3. What is Session Cookies?**

- Temporary cookies that exist only until the **browser is closed**.
- Example: Online shopping cart data cleared after browser close.

**Q4. What is Persistent Cookies?**

- Cookies stored on the client's computer **for a long time**.
- Remain even after closing browser.
- Example: "Remember Me" option on login forms.

**Q5. Explain URL Rewriting.**

- A method of **session management** where session ID is added to the **URL**.
- Example:

`http://example.com/page?sessionid=12345`

**Q6. Explain Hidden Field.**

- A hidden field is an **invisible form field** used to store session data.
- Example:

```
<input type="hidden" name="sessionId" value="12345">
```

**Q7. Explain Working with HTTP Session.**

- HttpSession is an interface in Java used for session tracking.
- Example:

```
HttpSession session = request.getSession();
```

```
session.setAttribute("username", "Ali");
```

**PART II: Long Questions (Exercise Answers)**

**Q1. What is a Session? How it works?**

- A **session** is a mechanism that stores user data across multiple requests.
- **Working:**
  1. User sends a request to server.
  2. Server creates a session ID.
  3. Session ID is sent to the client (via cookies, URL rewriting, or hidden field).
  4. Server retrieves session data using the session ID.

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- Example: Online banking session where account details are tracked until logout.

### Q2. Write a note on Cookies.

- **Cookies** are text files stored on client browser by server.
- **Types:**
  1. **Session Cookies** → Temporary, deleted on browser close.
  2. **Persistent Cookies** → Stored for longer duration.
- **Uses:**
  - Session tracking
  - Storing user preferences
  - Auto-login (Remember Me option)
- Example in Java Servlet:

```
Cookie c = new Cookie("username", "Ali");
```

```
response.addCookie(c);
```

### ★ Extra Important Short Questions with Answers

#### Q1. Difference between Session and Cookie.

- **Session:** Stored on server side.
- **Cookie:** Stored on client side.

#### Q2. What is the difference between Session Cookies and Persistent Cookies?

Feature	Session Cookies	Persistent Cookies
Lifetime	Deleted when browser closes	Remain until expiry date
Example	Shopping cart	"Remember Me" login

#### Q3. What is Session Tracking?

- A technique used to **track user activity** across multiple web pages.

#### Q4. What is Session Timeout?

- A session automatically ends after a **fixed period of inactivity**.
- Example: Online banking auto-logout after 10 minutes idle.

#### Q5. What is the difference between URL Rewriting and Hidden Fields?

- **URL Rewriting:** Adds session data in URL.
- **Hidden Field:** Stores session data inside form fields.

#### Q6. What are HttpSession Methods?

- `setAttribute(name, value)` → Stores data.
- `getAttribute(name)` → Retrieves data.
- `invalidate()` → Ends session.

### ★ Extra Important Long Questions with Answers

#### Q1. Compare different Session Management Techniques.

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Technique	Where Stored	Example
Cookies	Client-side	username=Ali
URL Rewriting	In URL	?sessionid=123
Hidden Fields	HTML forms	<input type="hidden">
HttpSession	Server-side	session.setAttribute()

### Q2. Explain Working of HttpSession with Example.

- **Step 1:** Server creates session object.
- **Step 2:** Session ID is assigned to client.
- **Step 3:** Data is stored in session object.
- **Step 4:** Data retrieved until session ends.

#### Example:

```
HttpSession session = request.getSession();  
session.setAttribute("user", "Ali");
```

```
// retrieve
```

```
String user = (String) session.getAttribute("user");
```

### Q3. Advantages and Disadvantages of Cookies.

- **Advantages:**
  - Simple to use.
  - Can store small data (user preferences).
- **Disadvantages:**
  - Limited size (4KB).
  - Can be disabled by users.
  - Security issues (can be stolen).