Chapter 4: Network Programming—Questions

A. Multiple Choice Questions (MCQs)

1. Which Java class is used to create a TCP server?

- A. Socket
- B. DatagramPacket
- C. ServerSocket
- D. InetAddress

2. Which protocol guarantees reliable and ordered data delivery?

- A. UDP
- B. TCP
- C. HTTP
- D. FTP

3. Which method is used by a server to wait for client connections?

- A. connect()
- B. accept()
- C. read()
- D. bind()

B. Short Answer Questions

4. Define a **socket** in Java networking.

5. What information must a client know before connecting to a server?

6. State **two differences** between connection-oriented and connection-less communication.

C. Scenario-Based Question

7. **Scenario:**
   A university wants to develop a **client–server application** where multiple students connect to a central server to submit assignments.

- a) Which Java networking classes should be used on the server and client side?

- b) How can the server support multiple students at the same time?

- c) Why is TCP preferred over UDP in this system?

Chapter 5: Distributed Programming (RMI)—Questions

A. Multiple Choice Questions (MCQs)

1. Java RMI allows method invocation between:

- A. Two methods in the same JVM

- B. Two JVMs on different machines

- C. Two threads in the same program

- D. Two databases

2. Which component stores the mapping between object names and stubs?

- A. Client
- B. Server
- C. RMI Registry
- D. Skeleton

3. Which interface must be implemented to make an object serializable?

- A. Remote
- B. Runnable
- C. Serializable
- D. Cloneable

B. Short Answer Questions

4. What is **Java RMI**?

5. What is the role of a **stub** in RMI?

6. Why must remote methods throw `RemoteException`?

C. Scenario-Based Question

7. **Scenario:**
   A banking system uses Java RMI to allow remote clients to call a method

`getAccountBalance()` from a server.

- a) Identify the main components involved in this RMI system.
- b) Explain how method parameters are transferred between client and server.
- c) Mention one advantage and one limitation of using RMI.

Chapter 6: Servlets—Questions

A. Multiple Choice Questions (MCQs)

1. HTTP is considered stateless because:

- A. It does not support sessions
- B. Each request is independent
- C. It does not use TCP
- D. It cannot send responses

2. Which class provides HTTP-specific servlet methods?

- A. GenericServlet
- B. Servlet
- C. HttpServlet
- D. ServletConfig

3. Which method is used to redirect a client to another URL?

- A. forward()
- B. include()
- C. sendRedirect()
- D. dispatch()

B. Short Answer Questions

4. Define a **Servlet**.
5. List the **servlet life cycle methods**.
6. What is the difference between **doGet()** and **doPost()**?

C. Scenario-Based Question

7. **Scenario:**
   An online learning system needs to maintain user login information while students navigate through multiple web pages.

- a) Why is session tracking required in this system?
- b) Explain any two session tracking techniques.
- c) Which session tracking technique is most suitable and why?

B. Short Answer Questions

7. What is the role of a **Login Servlet**?
8. Why is **doPost()** preferred over **doGet()** for registration forms?

9. What information is typically stored in an **HttpSession** after login?
10. Explain the purpose of **logout functionality** in a servlet-based system.
11. What is meant by **CRUD operations** in a Book Management System?

C. Scenario-Based Questions (Login & Registration)

12. Scenario: Login System

A university library system requires users to log in before accessing resources.

- a) How does a servlet receive login credentials from the browser?
- b) How does the servlet maintain user login state?
- c) What happens when the user logs out?

13. Scenario: Registration System

A new user must register before logging into an online library system.

- a) Which servlet method should process the registration form and why?
- b) How can the servlet validate user input?
- c) How does the servlet respond after successful registration?

D. Scenario-Based Questions (Book Management System)

14. Scenario: Add Book

An admin wants to add new books to the library system.

- a) Which HTTP method should be used to submit book details?

- b) How does the servlet retrieve book information from the request?
- c) Where should the book data be stored (conceptually)?

15. Scenario: View Books

Users want to view the list of available books.

- a) Which servlet method is appropriate for this request?
- b) How does the servlet send book data to the client?
- c) What content type is commonly used in the response?

16. Scenario: Update and Delete Books

The admin wants to update or delete existing books.

- a) Which CRUD operations are involved?
- b) How does the servlet identify which book to update or delete?
- c) What security measure should be applied before allowing these actions?

E. System-Based / Design Question

17. System Design Question

Design a **Library Book Management System** using **Servlet technology**.

Your answer should include:

- Login and Registration flow

- Role of `HttpServletRequest` and `HttpServletResponse`
- Use of `HttpSession` for authentication
- Servlet mapping and request flow
- How books are added, viewed, updated, and deleted