GUJARAT TECHNOLOGICAL UNIVERSITY

BE-6 SEMESTER – OLD PAPER – S22 TO W25 – QUESTION BANK

Subject Name & Code:

ADVANCED JAVA PROGRAMMING (3160707)

Unit 1: Java Networking

Repeated Questions:

1. What are the differences between a TCP socket and a UDP socket? How are they created in Java? (W24 - Q2a, 03 Marks) (W22 - Q2a, 03 Marks)
2. Explain URL and URLConnection class with example. (S24 - Q1a, 03 Marks) (W25 - Q2a, 03 Marks)
3. Compare Socket with ServerSocket. (S22 - Q2a, 03 Marks) (S23 - Q2a, 03 Marks)

Other Important Questions:

1. Write a client server program using TCP where client sends two numbers and server responds with the sum of them. (W25 - Q2c, 07 Marks)
2. What is the purpose of the URL class in Java? (W24 - Q1a.1, Part of 03 Marks)
3. Explain the usage of InetAddress class. (S25 - Q3 OR a, 03 Marks)
4. Implement the client server program using UDP Sockets. Client will request to download the file from server and server will send it to client. (S23 - Q1b, 04 Marks)
5. Explain the following classes with their use. I) URLConnection class II) DatagramSocket class III) DatagramPacket class IV) ServerSocket class (S25 - Q1b, 04 Marks)
6. Write a client-server program using TCP/UDP sockets to echo the message send by the client. (S24 - Q2c, 07 Marks)
7. OR (c) Write a TCP program in which client sends string from its standard input to the server. The server reads the string, converts the string into upper case and sends back to client (S24 - Q2 OR c, 07 Marks)
8. Explain the usage of Socket class with example. (W23 - Q1a, 03 Marks)
9. Write a program in which client sends string from its standard input to the server. The server reads the string, finds number of words, characters and digits of received string and sends result back to client. Use connection- oriented communication. (W23 - Q2c, 07 Marks)
10. How do you get the IP address of a machine from its hostname? (W22 - Q1a.1, Part of 03 Marks)
11. Write a java program where client sends a string as a message and sever counts the characters in the received message from client. Server sends this value back to the client. Server should be able to serve multiple clients simultaneously. (S22 - Q2 OR c, 07 Marks)
12. How do you handle multiple clients concurrently in socket programming? Explain with example. (W24 - Q2c, 07 Marks)

Unit 2: JDBC Programming

Repeated Questions:

1. What is JDBC? List the different types of JDBC drivers. Compare the various driver types for their advantages and disadvantages. (S25 - Q2c, 07 Marks) (W24 - Q1c, 07 Marks) (S24 - Q2b, 04 Marks)
2. What is the use of PreparedStatement? How will you use it? (W24 - Q3a, 03 Marks) (W22 - Q3a, 03 Marks)
3. What is the use of CallableStatement? How will you use it? (W24 - Q3 OR a, 03 Marks) (W22 - Q3 OR a, 03 Marks)
4. Explain Statement and PreparedStatement with example. (S24 - Q1b, 04 Marks) (W23 - Q1b, 04 Marks)
5. Discuss the use of execute (), executeUpdate () and executeQuery () methods. (S25 - Q1a, 03 Marks)

Other Important Questions:

1. Describe the concept of JDBC. (W25 - Q1a, 03 Marks)
2. List the different types of JDBC drivers and explain type3 driver with its advantages and disadvantages. (W25 - Q1c, 07 Marks)
3. Explain CallableStatement with example. (W25 - Q2b, 04 Marks)
4. Explain the use of PreparedStatement with appropriate example. (S22 - Q1c, 07 Marks)
5. Demonstrate the use of ResultSetMetadata. (S23 - Q1a, 03 Marks)
6. Write a JDBC Program for Employee Management application in which Consider Employee table with attributes Emp_ID, EmpName, Phone and Address, and perform followings: i) Insert multiple records using prepared statement. ii) Display all the records in reverse order. (W23 - Q2 OR c, 07 Marks)
7. What is connection URL? How do you make a database connection? Explain various ways to make the database connection using JDBC code snippets. (W22 - Q2c, 07 Marks)
8. OR (c) What is JDBC driver? Explain its role and compare various JDBC drivers. (W22 - Q2 OR c, 07 Marks)
9. Write a code snippet to show the use of PreparedStatement. (S23 - Q3a, 03 Marks)
10. Discuss the use of CallableStatement. (W23 - Q3a, 03 Marks)
11. What is difference between statement and prepared statement interface. (S25 - Q5 OR a, 03 Marks)
12. Design a form to input details of an employee and submit the data to a servlet. Write code for servlet that will save the entered details as a new record in database table Employee with fields (EmpId, EName, Email, Age). (S25 - Q1c, 07 Marks)
13. What is CallableStatement? Explain how to use it to call a stored procedure with proper example. (S24 - Q3c, 07 Marks)
14. Write a code snippet to explain the use of CallableStatement. (S23 - Q3 OR b, 04 Marks)

Unit 3: Servlet API and Overview

Repeated Questions:

1. What is a session? List out various session management techniques. (S22 - Q3a, 03 Marks) (W25 - Q3a, 03 Marks) (S24 - Q4c, 07 Marks)
2. Differentiate ServletConfig and ServletContext. (S23 - Q2b, 04 Marks) (W22 - Q2b, 04 Marks)
3. What is filter? How will you configure filter using deployment descriptor? (W24 - Q3b, 04 Marks) (S23 - Q3b, 04 Marks) (W22 - Q3b, 04 Marks)
4. What is FilterConfig? How will you use it? (W24 - Q3 OR b, 04 Marks) (S23 - Q3 OR a, 03 Marks) (W22 - Q3 OR b, 04 Marks)
5. Explain the purpose of RequestDispatcher using the methods forward () and include (). (S22 - Q3b, 04 Marks)
6. What is Request Dispatcher? What is the difference between Request dispatcher's forward () and include () method? (S25 - Q5a, 03 Marks) (S24 - Q1c, 07 Marks)
7. What are cookies? Demonstrate the use of cookies in servlet. (S22 - Q3c, 07 Marks) (W24 - Q4c, 07 Marks)
8. Compare JSP and Servlet. (S25 - Q2a, 03 Marks) (S24 - Q3 OR a, 03 Marks) (W23 - Q3 OR b, 04 Marks)
9. What is Servlet? List and explain various stages of Servlet life cycle. (S25 - Q3a, 03 Marks) (S22 - Q1b, 07 Marks)
10. Disuss servlet life cycle methods. (W25 - Q3b, 04 Marks)

Other Important Questions:

1. Define the init() method of a servlet. (W25 - Q4a, 03 Marks)
2. What is Deployment descriptor (web.xml) in servlet? Explain with code. (S24 - Q2a, 03 Marks)
3. Explain Servlet Life Cycle with example and demonstrate every state in detail. (S24 - Q3 OR b, 04 Marks)
4. Write a Login servlet. Take input username and password from html file login.html and authenticate the user. Write the web.xml. (S24 - Q3 OR c, 07 Marks)
5. Explain the use of RequestDispatcher in servlet. (W24 - Q4 OR a, 03 Marks)
6. Demonstrate the use of ServletRequestDispatcher and its methods include and forward. (S23 - Q2c, 07 Marks)
7. OR (c) Demonstrate the use of JSP action tags include and forward. (S23 - Q2 OR c, 07 Marks)
8. Differentiate attributes and parameters of servlet. (W23 - Q3b, 04 Marks)
9. Write a servlet code for login application using database connectivity. (W23 - Q3c, 07 Marks)
10. What is Session Management in servlet? Write a servlet application that demonstrates the use of cookie. (W23 - Q3 OR c, 07 Marks)
11. What are the attributes for the JSP page directive? (W22 - Q1a.3, Part of 03 Marks)
12. What are the directive tags of JSP? Write a JSP page to demonstrate the use of them. (W22 - Q3c, 07 Marks)
13. OR (c) What are the implicit objects of JSP? Write a JSP page to demonstrate the use them. (W22 - Q3 OR c, 07 Marks)
14. Write a servlet to display the name and age of a person received as parameters. (W25 - Q4b, 04 Marks)
15. Explain use of ServletConfig and ServletContext object with example. (W25 - Q3c, 07 Marks)
16. How the GET method different from the POST method? (W25 - Q4 OR a, 03 Marks)
17. What is filter? List out the application of the filter. (W25 - Q4 OR b, 04 Marks)
18. Explain ServletContext and ServletConfig interface, Attributes in Servlet, Request Dispatcher interface [Figure or Table given - refer Question paper of Season Year]. (S22 - Image.png content, Part of 25 Marks)
19. Explain various Session tracking mechanisms in servlet with example. (S25 - Q2b, 04 Marks)

20. OR (c) What is filter? What is its use? List different filter interfaces with their important methods. (S25 - Q2 OR c, 07 Marks)
21. List out the important methods of HttpServletResponse. (W24 - Q1a.2, Part of 03 Marks) (W22 - Q1a.2, Part of 03 Marks)
22. Demonstrate the use of ServletConfig and ServletContext. (W24 - Q2b, 04 Marks)
23. OR (c) What is Session? Compare different session management techniques. (W24 - Q2 OR c, 07 Marks)

Unit 4: The Filter API, Cookies and Session Management

Note: This unit combines topics from the syllabus document's Unit 4 (Filter API, Cookies, Session Management).

Repeated Questions:

1. What do you mean by session tracking? What are the session tracking techniques? Demonstrate any of them. (W22 - Q1c, 07 Marks) (S23 - Q1c, 07 Marks)
2. Explain various Session tracking mechanisms in servlet with example. (S25 - Q2b, 04 Marks)

Other Important Questions:

1. Explain the lifecycle of filter. (W23 - Q3 OR a, 03 Marks)
2. What is Filter API? (S24 - Q4b, 04 Marks)
3. What is the function of a SessionFactory object? How will you obtain such an object? (W22 - Q1b.1, 04 Marks)
4. What are the cookies? Demonstrate the use of cookies in servlet for session management. (W24 - Q4c, 07 Marks)
5. OR (c) Explain JSP inbuilt objects with their use in application. (W24 - Q4 OR c, 07 Marks)

Unit 5: Java Server Pages (JSP)

Repeated Questions:

1. List JSP implicit objects and explain any two in detail. (S25 - Q3b, 04 Marks) (W22 - Q3 OR c, 07 Marks)
2. Explain JSP life cycle phases. (S24 - Q3b, 04 Marks) (S22 - Q4c, 07 Marks)
3. List and Explain JSP Action Tags with example. (S25 - Q3 OR c, 07 Marks) (W23 - Q1c, 07 Marks) (W25 - Q4c, 07 Marks)
4. What are the JSP action tags? (W24 - Q1a.3, Part of 03 Marks)
5. Discuss various stages of JSP life cycle. (S22 - Q4c, 07 Marks)
6. Write a Web Application using JSP to get an integer N (where N>0) and display all the prime number up to N. (W25 - Q4 OR c, 07 Marks)

Other Important Questions:

1. How MVC architecture is better than conventional approach? (W25 - Q3 OR a, 03 Marks)
2. List and Explain various stages of JSP life cycle. (W25 - Q3 OR b, 04 Marks)
3. Write a Web application using servlet to find the sum of all the digits of an input integer. (W25 - Q3 OR c, 07 Marks)
4. Explain JSP page directives with example. (S25 - Q3c, 07 Marks)
5. What is difference between include directive and jsp:include action tag? (S24 - Q4 OR a, 03 Marks)
6. Develop a web application as following to demonstrate the use of <jsp:useBean>.
    1. Create a Java Bean named Student with attributes name and age.
    2. Create a web page to set the properties of Student using <jsp:useBean>.
    3. Create a web page to display the properties of Student using <jsp:useBean>. (S23 - Q3c, 07 Marks)
7. OR (c) Develop a web application as following using JSP.
    1. Create a web page (HTML) to submit the registration detail (Name, email and contact number) of user to jsp page.
    2. Create a jsp page to enter the registration detail in the table of database.
    3. Create a jsp page to display the list of all registered users. (S23 - Q3 OR c, 07 Marks)
8. Explain scripting elements of JSP. (W23 - Q2b, 04 Marks)
9. What is difference between JSTL tag <c:import> and <jsp:include> action tag? (W23 - Q4a, 03 Marks)
10. Write a JSP application for student registration application using database connectivity. (W23 - Q4 OR c, 07 Marks)
11. What are the three types of text field's tags provided by JSP? (W24 - Q1b.2, Part of 04 Marks)
12. What is Java Bean? Demonstrate the use of JSP bean in web application. (W24 - Q3c, 07 Marks)
13. How can you apply JSP Input Validation using input validators? (W22 - Q1b.2, Part of 04 Marks)
14. Develop a web application as following to demonstrate the use of <jsp:useBean>.
    Create a Java Bean named Employee with attributes name and age. Create a web page to set the properties of Employee using <jsp:useBean>. Create a web page to display the properties of Employee using <jsp:useBean>. (W22 - Q4c, 07 Marks)
15. Discuss JSP Exception Handling. (W25 - Q5a, 03 Marks)
16. Explain JSP inbuilt objects with their use in application. (S22 - Q2c, 07 Marks)

Unit 6: Java Server Faces 2.0 (JSF)

Repeated Questions:

1. What is JSF? List and explain its features. (S25 - Q4b, 04 Marks) (S22 - Q4a, 03 Marks)
2. What is the JSF facelets? Explain any two facelets tags. (S25 - Q4a, 03 Marks) (S24 - Q5b, 04 Marks)
3. Explain JSF request processing life cycle. (W23 - Q4c, 07 Marks) (S23 - Q4c, 07 Marks)
4. Write a code snippet to show the use of JSF action event. (W24 - Q4 OR b, 04 Marks) (W22 - Q4b, 04 Marks)

Other Important Questions:

1. List out JSF HTML tags and explain any two. (W25 - Q5b, 04 Marks)
2. What are the benefits of using JSF Framework? (W24 - Q4a, 03 Marks)
3. How will you use validator tags in JSF? (W24 - Q4b, 04 Marks)
4. What is JSTL? Explain the core tags of the SQL tag library. (W24 - Q3 OR c, 07 Marks) (S22 - Q4b, 04 Marks)
5. What is faces- config.xml? Explain it with code. (W23 - Q4 OR a, 03 Marks)
6. List the JSF standard validator tags and explain any three in detail. (W23 - Q4 OR b, 04 Marks)
7. What is JSF tag library? Explain any four-html tag. (S25 - Q4 OR c, 07 Marks)
8. Briefly explain JSF Converter tags? (S25 - Q4b, 04 Marks)
9. What is EL? Write a code snippet to show the use of method expressions in JSP page. (S23 - Q4a, 03 Marks)
10. Create a custom tag to print current date and time in JSP page. (S23 - Q4b, 04 Marks)
11. OR (c) Discuss the tags of JSTL SQL tag library. (S23 - Q4 OR c, 07 Marks)
12. What is EL? Write a code snippet to show the use of method expressions in JSF page. (W22 - Q4a, 03 Marks)
13. How will you use <h:commandButton> and <h:dataTable>? (W22 - Q4b, 04 Marks)
14. OR (c) Develop a web application as following to demonstrate the use of JSTL SQL tag library. Create a web page to store the registration detail (Name, email and contact number) of user in the database. Create a web page for user to update registration detail in the database. Create a web page to display the list of all registered users. (W22 - Q4 OR c, 07 Marks)
15. Draw the JSF request processing life cycle and briefly give the function of each phase. (S24 - Q4 OR c, 07 Marks)

Unit 7: Hibernate 4.0

Repeated Questions:

1. What is Hibernate? What are the features of it? (S22 - Q5a, 03 Marks) (W22 - Q5 OR a, 03 Marks)
2. Explain Hibernate Architecture. (W23 - Q5 OR c, 07 Marks) (S22 - Image.png content, Part of 15 Marks)
3. What are the advantages of Hibernate over JDBC? (W24 - Q1b.1, Part of 04 Marks) (S25 - Q4c, 07 Marks)
4. What is ORM? Explain object/relational mappings in hibernate. (S25 - Q5 OR c, 07 Marks) (S24 - Q5a, 03 Marks) (W23 - Q5b, 07 Marks)
5. Draw and explain the architecture of Hibernate. (S25 - Q5 OR b, 04 Marks) (S23 - Q5c, 07 Marks)

Other Important Questions:

1. Draw the Hibernate Architecture diagram and explain each part in brief. (W25 - Q5c, 07 Marks)
2. Explain the steps to develop the Hibernate web application. (W25 - Q5 OR c, 07 Marks)
3. What is Hibernate? List Advantages of Hibernate over JDBC (S25 - Q4c, 07 Marks)
4. What is HQL? Write difference between HQL and SQL. (S25 - Q4 OR b, 04 Marks)
5. What are the different Hibernate interfaces? Explain their role in brief. (W24 - Q5c, 07 Marks) (W22 - Q5c, 07 Marks)
6. What is Hibernate SessionFactory and how to configure it? (W24 - Q5 OR a, 03 Marks)
7. Show the use of some important annotations for Hibernate mapping. (W24 - Q5 OR b, 04 Marks)
8. List the Hibernate annotations and explain any two Hibernate annotations in detail. (W23 - Q5a, 04 Marks)
9. Compare Hibernate and JDBC. (W23 - Q5 OR a, 03 Marks)
10. Explain OR mapping using hibernate mapping file. (W23 - Q5 OR b, 04 Marks)
11. What is OR mapping? How will you configure hibernate mapping file to map a table and its columns from a given database? (W22 - Q5 OR b, 04 Marks)

Unit 8: Java Web Frameworks: Spring MVC

Repeated Questions:

1. Explain architecture of Spring MVC Framework. (S24 - Q5c, 07 Marks) (W23 - Q5c, 07 Marks)
2. What is Dependency Injection? (S24 - Q5 OR a, 03 Marks) (W24 - Q5b, 04 Marks)

Other Important Questions:

1. Explain any three Spring form tags with example. (W25 - Q5 OR a, 03 Marks)
2. Briefly explain spring bean life cycle. (S25 - Q5b, 04 Marks)
3. What is MVC architecture? Explain Spring architecture with neat sketch. (S25 - Q5c, 07 Marks)
4. Explain the flow of Spring Web MVC. (W24 - Q5 OR c, 07 Marks)
5. What is the advantage of using Spring Framework? (W24 - Q5a, 03 Marks)
6. Explain the role of IoC container in Spring. (S23 - Q5a, 03 Marks)
7. Explain AOP concepts of Spring. (S23 - Q5b, 04 Marks)
8. Discuss Spring framework architecture in detail. (S23 - Q5 OR c, 07 Marks)
9. What are the different bean scopes in spring? (S22 - Q5 OR a, 03 Marks)
10. What is Spring Bean? How can you create bean in Spring boot? (S22 - Q5 OR b, 04 Marks)
11. Explain the Spring Web MVC framework controllers (S22 - Q5c, 07 Marks)
12. What is Spring AOP? What are Join points and Point cuts? (W22 - Q5a, 03 Marks)
13. What is dependency Injection? What is the role IoC container in Spring? (W22 - Q5b, 04 Marks)
14. What are the advantages of Spring MVC? Explain the flow of Spring Web MVC. (W22 - Q5 OR c, 07 Marks)

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