

CS 665 Information Delivery on the Internet Exam 2 - Name: _____
Fall 2002

Part 1: (36 points - 3 points for each problem)

- (A) 1. Which file stores the directives that control an Apache server's behavior?
(A) httpd.conf (B) srm.conf (C) access.conf (D) ssl.conf
- (D) 2. Which directive is used to specify directory for CGI scripts for the Apache server?
(A) DirectoryIndex (B) ScriptDirectory (C) DocumentRoot (D) ScriptAlias
- (C) 3. Which is not the life-cycle method of the servlet interface?
(A) init (B) service (C) operation (D) destroy
- (B) 4. Which Cookie method can be used to specify the lifetime of a cookie?
(A) setLifeTime (B) setMaxAge (C) setTime (D) setLife
- (B) 5. In Java, the keyword(s) that every typed method must have is:
(A) void (B) return (C) break (D) public static void
- (D) 6. In Java, the statement for connecting to the keyboard is
(A) `Stream in = System.in;` (B) `Stream System.in = new Stream(System.in);`
(C) `Stream in = Stream(System.in);` (D) `Stream in = new Stream(System.in);`
- (C) 7. Which keyword can be used to declare a constant in Java?
(A) constant (B) const (C) final (D) static
- (C) 8. Which is a superclass of all classes in Java?
(A) Root (B) SuperClass (C) Object (D) None of above
- (B) 9. In a relational database, a table has at least one column that uniquely identifies the rows of the table. The value in this special column is called
(A) unique key (B) primary key (C) main key (D) special key
- (A) 10. Which **SELECT** clause value means to select all the columns of the specified table that meet the condition?
(A) * (B) ? (C) . (D) \$
- (D) 11. Which SQL command is used to change one or more of the values of a row of a table?
(A) change (B) modify (C) join (D) update
- (A) 12. Which method of the **Statement** class is used for the SQL action command in JDBC?
(A) executeUpdate() (B) executeQuery() (C) actQuery() (D) actUpdate()

Part 2: (64 points)

1. Briefly explain these terminologies. If they are acronyms, also write what they stand for. (12 points)
- (a) **Virtual Host** A virtual host is built for multiple sites to share the same physical system.
 - (b) **Servlet Container** A servlet container is a program that manages servlets which can either be built into the Web server or be added to the Web server.
 - (c) **SQL** The Structured Query Language (SQL) is a standard language for specifying accesses and modifications to databases.
 - (d) **JDBC** JDBC (Java Database Connectivity) is a standard protocol for Java that can be implemented as a driver for any database system.

2. Describe five commonly used methods of HttpServlet excluding `init` and `destroy` methods. (10 points)

Ans:

- (a) `doGet`: handle HTTP GET request.
- (b) `doPost`: handle HTTP POST request.
- (c) `doPut`: handle HTTP PUT request.
- (d) `doDelete`: handle HTTP DELETE request.
- (e) `getServletInfo`: allow the servlet to provide information about itself.

3. What is a cookie? What is session tracking? What are differences between them? (6 points)

Ans: A cookie storing information about a browser user on the browser system is an object sent by the server to a connected browser. Session tracking is an approach to store information about requests made by a client during a session. A session object can store a list of information of requests of a client during a session while a cookie can store only a piece of information. Session objects cannot persist beyond the end of a client session.

4. Consider the following Java code. Write the result after running it in the command line as follows:

```
java Hello John Wayne 3
```

```
public class Hello {
    public static void main (String[] args) {
        int number += Integer.parseInt(args[2]);
        number += Integer.parseInt(args[2]);
        for (int i = 0; i < number; i++) {
            System.out.println("Hello, " + args[0] + " " + args[1] + ".");
        }
    }
}
```

(6 points)

```
Hello, John Wayne
Hello, John Wayne
Hello, John Wayne
Hello, John Wayne
Hello, John Wayne
Hello, John Wayne
Hello, John Wayne
```

5. Consider the following two database tables. Use the SQL command to get a list the first name and last name of students who have both grade A in Mathematics and Science. (6 points)

student_id	firstname	lastname
1001	Mike	Nichols
2002	Jay	Leno
3003	John	Wayne

Table 1 Student

student_id	Mathematics	Science
1001	A	B
2002	B	A
3003	A	A

Table 2 Grade

```
select firstname, lastname
from Student, Grade
where Student.student_id = Grade.student_id and
      Mathematics = 'A' and Science = 'A';
```

6. Explain the three ways to use JDBC. (6 points)

Ans:

- (a) Use JDBC through ODBC

Java	JDBC-ODBC	ODBC
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 \iff

Database

- (b) Use JDBC directly

Java	JDBC
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 \iff

Database

- (c) Use JDBC through a midtier computer

Java

 \iff

Middle tier	JDBC
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 \iff

Database

7. Complete the following greeting servlet which reads a text input form with the attribute `name = "nickname"` and replies a greeting message with the input name. (9 points)

```
import javax.servlet.*;
import javax.servlet.http.*;
import java.io.*;

public class Greeting extends HttpServlet {
    public void doGet(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {

        response.setContentType("text/html");
        PrintWriter returnHTML = response.getWriter();
        String name = request.getParameter("nickname");

        returnHTML.println("<html><head><title>Greeting</title></head><body>");
        returnHTML.println("<h2>" + name + "! How are you doing?</h2>");
        returnHTML.println("</body></html>");
        returnHTML.close();
    }
}
```

8. Complete the following JDBC program which displays all rows of the `Stock` table in a MySQL database with specifications as shown in the following two tables: (9 points)

Host name	kira
Account name	stock
Password	stock123
Database	stocks

Field	Type
ticker	varchar(6)
comapny	varchar(20)
price	decimal(4, 2)

```
import java.sql.*;

public class mysqljdbc {
    public static void main(String args[]) throws ClassNotFoundException,
        IllegalAccessException, InstantiationException, SQLException
    {
        Class.forName("com.mysql.jdbc.Driver").newInstance();

        Connection conn = DriverManager.getConnection(
            "jdbc:mysql://kira/stocks?user=stock&password=stock123");

        Statement stmt = conn.createStatement();
        String sql_cmd = "select * from stock";
        ResultSet RS = stmt.executeQuery(sql_cmd);

        while (RS.next()) {
            System.out.println("Ticker: " + RS.getString(1));
            System.out.println("Company: " + RS.getString(2));
            System.out.println("Price: " + RS.getFloat(3));
        }

        RS.close();
        stmt.close();
        conn.close();
    }
}
```