

CS 665 Information Delivery on the Internet Exam 2 - Name: _____
Fall 2003

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

- (B) 1. Which cookie parameter is used to specify the expiration time of a cookie?
(A) expiredtime (B) expires (C) setexpire (D) setlife
- (A) 2. Which file stores the directives that control an Apache server's behavior?
(A) httpd.conf (B) srm.conf (C) access.conf (D) ssl.conf
- (B) 3. Which directive is used to specify the index file for a directory in the Apache server?
(A) DirectoryDefault (B) DirectoryIndex (C) DirectoryRoot (D) DirectoryAlias
- (D) 4. Which of the following lines in Java will compile without warning or error?
(A) float f = 1.3; (B) char c = "a"; (C) byte b = 257; (D) None of above
- (C) 5. In Java, the keyword(s) that every typed method must have is:
(A) void (B) typedef (C) return (D) public static void
- (C) 6. Which keyword is used to indicate a call to a superclass constructor or method in Java?
(A) default (B) parent (C) super (D) superclass
- (A) 7. Which keyword in Java can be used to declare a class cannot be instantiated?
(A) abstract (B) constant (C) final (D) static
- (B) 8. Which of the following is not a keyword or reserved word in Java?
(A) if (B) then (C) goto (D) case
- (D) 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) main key (B) special key (C) unique key (D) primary 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 join one or more of the tables?
(A) UPDATE (B) MODIFY (C) JOIN (D) SELECT
- (D) 12. Which method in DBI is used to create a compiled version of a SQL command?
(A) compile (B) execute (C) generate (D) prepare

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 to host multiple sites that share the same physical system.
 - (b) **SQL** The Structured Query Language (SQL) is a standard language for specifying accesses and modifications to databases.
 - (c) **ODBC** Open Database Connectivity (ODBC) is an open standard application programming interface (API) for accessing a database.
 - (d) **Applet** An Applet is a Java program that can be resident on the server and downloaded to the browser.

2. Explain third-tier architecture of a Web site supported by databases. (6 points)

Ans:



- (a) The first tier has the Web browser, which provides the user interface.
 (b) The middle tier has Web server and the applications that require database access.
 (c) The third tier has the database system and the database itself.
3. What is a session to a Web server? What is a cookie? (6 points)
 Ans:
- (a) A session to a Web server is the collection of all the requests made by a particular browser from the time the browser is started until the user exits the browser.
 (b) A cookie is an object that is sent the server to a connected browser, where it is stored.
4. Consider the following Java code. Write the result after running it in the command line as follows:
 java Hello Natalie Wood Jay Douglas Leno

```

public class Hello {
    public static void message (int i, String args[]){
        String Hello = "Hello! ";
        Hello += args[i--] + " " + args[i];
        System.out.println(Hello);
    }
    public static void main(String args[]){
        for(int i = 1; i < args.length; i++) message(i++, args);
    }
}
  
```

(6 points)

Ans:

Hello! Wood Natalie
 Hello! Douglas Jay

5. Consider the following two database tables. Use the SQL command to get a list of the album title and the first and last name of the singers whose album is released in 2002. (6 points)

Artist_ID	Firstname	Lastname
1001	Avril	Lavigne
2002	Alanis	Morissette
3003	Sarah	McLachlan

Table 1 Artist

Artist_ID	Title	Released
1001	Let Go	2002
2002	Under Rug Swept	2002
3003	Surfacing	1997

Table 2 Album

Ans;

```

select Title, Firstname, Lastname
from Artist, Album
where Artist.Artist_ID = Album.Artist_ID and Released = 2002
  
```

6. (a) Write a HTML document with a text input form to collect the price of a stock. This HTML document will request a CGI program `stock.pl` in the `cgi` directory of your account at `kirk.cs.wichita.edu:6550`.
- (b) Complete the following Perl program which displays those stocks whose price is less than the value collected from the above text input form after querying the `Stock` table. The database and table information is specified as shown in the following two tables: (14 points)

Host name	kira
Account name	stock
Password	stock123
Database	stocks

Field	Type
ticker	varchar(6)
comapny	varchar(20)
price	decimal(5, 2)

Hint: Use the following functions in `CGI.pm`: `param()`, `header()`, `start_html()`, and `end_html()`.

```
(a) <html>
    <head>
    <title>A Stock Search Site</title>
    </head>
    <body>
    <form action = "http://kirk.cs.wichita.edu:6550/cgi/cs655/stock.pl"
          method = "POST">
    <input type = "text" price = "price" size = "10">
    <input type = "submit" value = "Submit">
    </form>
    </body>
</html>
```

```
(b) #!/usr/bin/perl
```

```
use DBI;
use CGI qw(:standard);

print header();
print start_html("Find Stock");
Query_Database();
print end_html();

sub Query_Database {
    my ($dbname, $host, $user, $password) = ("stocks", "kira", "stock", "stock123");
    my $price = param("price");

    my $dbh = DBI->connect("dbi:mysql:dbname=$dbname;host=$host", $user, $password);
    $dbh or die "cannot connect to the database:!\n";

    my $sth = $dbh->prepare("select * from Stock where price < $price");
    $sth->execute();

    while (my $data = $sth->fetchrow_arrayref ()) {
        Print_Result(@$data);
    }
    $sth->finish ();
    $dbh->disconnect;
}

sub Print_Result {
    my ($ticker, $company, $price) = @_;
    print "Ticker: ", "$ticker <br>";
    print "Company: ", "$company <br>";
    print "Price: ", "$price <br>";
}
```

7. Complete the following Java program that reads the keyboard input and writes into a file whose file name is read from the command line. (8 points)

Hint: Use the following Java classes: `BufferedReader`, `FileOutputStream`, `FileReader`, `InputStreamReader`, `IOException`, and `PrintStream`.

```
import java.io.*;

public class KeyinFile {
    public static void main (String[] args) throws IOException {

        BufferedReader keyboard =
            new BufferedReader (new InputStreamReader (System.in));

        PrintStream out = new PrintStream (new FileOutputStream(args[0]));

        String line = null;

        while((line = keyboard.readLine()) != null) {
            out.println(line);
        }
        keyboard.close();
        out.close();
    }
}
```

8. Explain instance and static methods in Java. (6 points)

Ans:

- (a) An instance method is a method which must be invoked via an instance of a class.
- (b) A static method is a method which can be invoked via the name of the class in which they are defined.