

### Part I: Multiple Choices (20 marks)

1. Based on the below program segment, how many values will the table of studentData receives?

```
con = DBConnection.createConnection();
String query = "INSERT INTO studentData (username,password,
studentid,fullname,email) VALUES(?, ?, ?, ?, ?)";
PreparedStatement preparedStatement = con.prepareStatement(query);
preparedStatement.setString(1, username);
preparedStatement.setString(2, password);
preparedStatement.setString(3, studentid);
preparedStatement.setString(4, fullname);
preparedStatement.setString(5, email);
```

- A. None
- B. 5
- C. Depends on the number of declared variable
- D. Unlimited

2. Given the program segment:

```
try (Connection conn = DriverManager.getConnection(url);
Statement stmt = conn.createStatement())
{
    conn.setAutoCommit(false);
    stmt.executeUpdate("insert into colors values ('red')");
    stmt.executeUpdate("insert into colors values ('blue')");
    conn.commit();
    conn.setAutoCommit(true);
    stmt.executeUpdate("insert into colors values ('green')");
}
```

How many rows are added to the **colors** table from running the following code?

- A. One
- B. Two
- C. Three
- D. None

3. Given the program segment:

```
ResultSet rs = stmt.executeQuery("SELECT * FROM paymentRecords");
while (rs.next()){
    System.out.println(rs.getInt(1));
    System.out.println(rs.getDouble(2));
    System.out.println(rs.getString(3));

    con.close();
```

Which of the following statement is responsible for traversing records returned by database?

- A. stmt.executeQuery(...)  
B. con.close()  
C. rs.next()  
D. rs.getInt(...)
4. Which one is to create an instance for a JavaBean component?
- A. <jsp:usebean id="register" class=" RegisterBean "/>  
B. <jsp:getProperty name="register" property="magic"/>  
C. <jsp:usebean name=" register " class=" RegisterBean /> "  
D. <jsp:usebean id=" register " value=" RegisterBean "/>
5. Which of the following statement is **CORRECT** to obtain id\_no value from a JavaBean named StaffId?
- A. <jsp:getProperty name="StaffId" property="id\_no" />  
B. <jsp:getProperty id="StaffId" property="id\_no" />  
C. <jsp:setProperty name="StaffId" property="id\_no" />  
D. <jsp:setProperty id="StaffId" property="\*\*" />
6. Stateful session bean is an EJB that \_\_\_\_\_.
- A. provide the state of the conversation between the client and itself.  
B. invokes a method on the bean.  
C. deployed with the declarative attribute “stateless”.  
D. maintain the state of the conversation for more than one client.
7. Given the program segment:

```
@Remote  
public interface MethodSessionBeanRemote {  
  
    int add(int a, int b);  
  
    int subtract(int a, int b);
```

Which of the following statement is **CORRECT** to implement the method for stateless session bean ?

- A.
- ```
public class MethodSessionBean implements MethodSessionBean {  
  
    public int add(int a, int b) {  
        return a + a;  
    }  
  
    public int subtract(int a, int b) {  
        return a - b;  
    }
```

B.

```
public class MethodSessionBean implements  
MethodSessionBeanRemote {  
  
    public int add(int a, int b) {  
        return a + b;  
    }  
  
    public int subtract(int a, int b) {  
        return a - b;  
    }  
}
```

C.

```
public class MethodSessionBean extends  
MethodSessionBeanRemote {  
  
    public int add(int a, int b) {  
        return a + b;  
    }  
  
    public int subtract(int a, int b) {  
        return a - b;  
    }  
}
```

D.

```
public class MethodSessionBean interface  
MethodSessionBeanRemote {  
  
    public int add(int a, int b) {  
        return a + b;  
    }  
  
    public int subtract(int a, int b) {  
        return a - b;  
    }  
}
```

8. Which one of the following is/are Java EE modules?

- i. EJB modules
- ii. Socket modules
- iii. Web Modules
- iv. Driver modules

- A. i only
- B. i, ii and iii
- C. i and iii
- D. All of the above

9. Which of the following attributes are mandatory in <jsp:useBean /> tag?

- i. id
- ii. type
- iii. class
- iv. property

- A. i and ii
- B. i and iii
- C. i, ii, and iii
- D. i, iii, and iv

10. In a PreparedStatement, parameters are counted from position \_\_\_\_\_.

- A. 0
- B. 1
- C. 2
- D. 3

**Part II: Answer all questions (30 marks).****Question 1**

You are required to develop a Quarantine Management System. Figure 1 shows the MVC framework with Java classes/files involved.

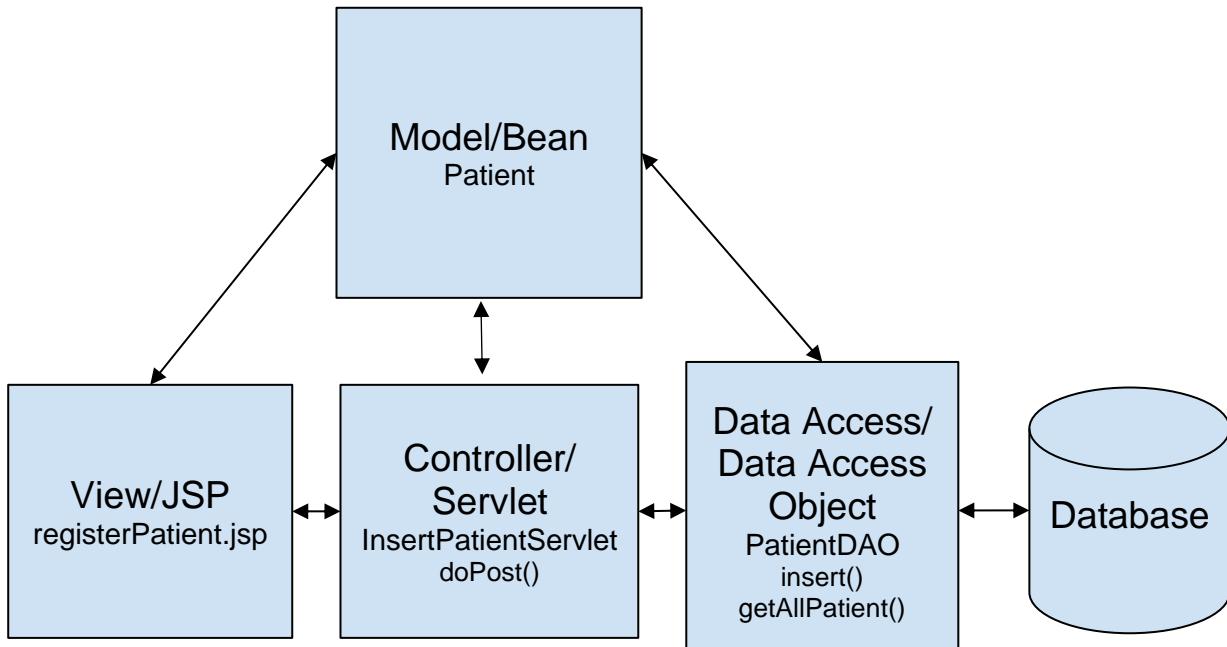


Figure 1

- a) Write a JavaBean class named Patient. The bean consists of all properties and method based on class diagram shown in Figure 2. The JavaBean class should include constructors (default and normal), getters and setters. All properties or data members should be declared as private and all methods should be declared public.

(10 marks)

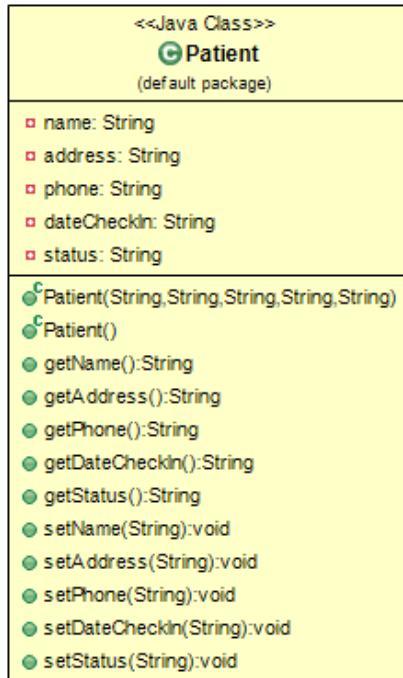


Figure 2

```
public class Patient {
```

```
}
```

- b) Given the form interface (Figure 3) to register the patient details and the code segment of the HTML (Figure 4). Complete `InsertPatientServlet` class that handles HTTP request to insert the patient's details.

(8 marks)

Register Patient

Name:

Address:

Phone Number:

Date Check In:

Status:

Positive ▾



Figure 3

```
<form action="InsertPatient" method="POST">
    <fieldset>
        <legend>Register Patient</legend>
        Name: <br/> <input type="text" name="name" /><br/>
        Address: <br/> <textarea name="address"></textarea><br/>
        Phone Number: <br/> <input type="text" name="phone" /><br/>
        Date Check In: <br/> <input type="text" name="date" /><br/>
        Status: <br/> <select name="status">
            <option value="true">Positive</option>
            <option value="false">Negative</option>
        </select><br/>
    </fieldset>
    <input type="submit" value="submit">
    <input type="reset" value="reset">
</form>
```

Figure 4

```
@WebServlet(" / ") //a) url pattern 1 mark  
public class InsertPatientServlet extends HttpServlet {  
    private static final long serialVersionUID = 1L;  
  
    private PatientDAO dao;  
    public InsertPatientServlet() {  
        super();  
        dao = new PatientDAO();  
    }  
  
    protected void doPost(HttpServletRequest request,  
    HttpServletResponse response) throws ServletException, IOException  
{  
    try{  
        //b) create an object from Patient by invoking default  
        //    constructor 1 mark  
  
        //c) retrieve all values from Figure 3 and set them  
        //    into object of Patient 5 marks  
  
        //d) pass the object to insert() from PatientDAO 1 mark  
    }  
    catch (Throwable theException) {  
        System.out.println(theException);  
    }  
    request.setAttribute("patients", dao.getAllPatient());  
    RequestDispatcher view =  
    request.getRequestDispatcher("successInsert.jsp");  
    view.forward(request, response);  
}  
}
```

- c) Complete the code segment of `insert()` method in `PatientDAO` class to insert the patient's details.  
(5 marks)

```
public class PatientDAO {  
    public void insert(Patient pt){  
        PreparedStatement ps=null;  
        Connection currenCon=null;  
  
        //a) get value of name, address, phone number, date check in  
        // and status  
        // 2.5marks
```

```
try {  
    currentCon = ConnectionManager.getConnection();  
    ps=currentCon.prepareStatement("insert into patient  
(name,address,phone,dateCheckIn,status)values(?,?,?,?,?)");
```

//b) set the value 2.5marks

```
    ps.executeUpdate();  
}  
catch (Exception ex) {  
    System.out.println("An Exception occurred! " + ex);  
}  
ps.close();  
currentCon.close();  
}  
}
```

## Question 2

Write a standard web.xml (deployment descriptor) that perform the mapping between the servlet and url pattern, and parameter initialisation for the following:

- a) Servlet name is `PatientServlet` and servlet class is `InsertPatientServlet` and url pattern `/insert.data` (4 marks)
- b) Initialise parameter `status-list` with values positive or negative in the `PatientServlet`. (3 marks)