



# SLIATE

SRI LANKA INSTITUTE OF ADVANCED TECHNOLOGICAL EDUCATION

(Established in the Ministry of Higher Education, vide in Act No. 29 of 1995)

## Higher National Diploma in Information Technology

Second Year, Second Semester Examination – 2016

### HNDIT 2411- Enterprise Architecture

Instructions for Candidates:

Answer only 05 Questions

No. of Questions: 06

No. of Pages : 06

Time: Three (03) hours

#### 1 (Total 20 Marks)

- i. Name four major computing paradigms that have dominated computer science education and software development. (4 marks)
- ii. The major innovation in Service Oriented Computing is the move from the object oriented paradigm to a service oriented paradigm. What is the major difference between Object in Object Orientation and Service in Service Orientation? (2 marks)
- iii. Compare and contrast **Object Oriented Programming** and **Service Oriented Programming** in terms of code shearing and reuse. (4 marks)
- iv. Briefly explain levels of the 3-tiered architecture. (6 marks)
- v. "There are differences between J2EE components and Standard Java classes". Do you agree with this statement? Justify your answer. (4 marks)

2

**(Total 20 Marks)**

(2 marks)

- i. Name two ways of performing multi-tasking.
- ii. Write functionality of the following methods.

a. Thread.sleep()

b. Thread.yield()

(2 marks)

- iii. Compare HTML and XML

(2 marks)

- iv. Write characteristics of well-formed xml file.

(4 marks)

- v. Write the DTD for the xml file given below.

(6 marks)

```
<?xml version="1.0" encoding = "UTF-8" ?>
```

```
<Library>
```

```
<book isbn="0-672-32879-8" edition="2nd">
```

```
<title>JavaScript</title>
```

```
<author>M.Moncur</author>
```

```
<author_email>moncur@gmail.com</author_email>
```

```
<author_url>www.moncur.ac.lk</author_url>
```

```
</book>
```

```
<book isbn="0-672-33575-1" edition="3">
```

```
<title>Java</title>
```

```
<author>R.Cadenhead</author>
```

```
<author_email>cade@gmail.com</author_email>
```

```
<author_url>www.cade.ac.lk</author_url>
```

```
</book>
```

```
<book isbn="0-672-33097-0" edition="4">
```

```
<title>HTML and CSS</title>
```

```
<author>Melonie and Morrison</author>
```

```
<author_email>melonie@gmail.com</author_email>
```

<author\_url>www.melonie.ac.lk</author\_url>

</book>

</ Library >

- vi. Draw the Tree View of the above XML document (4 marks)

**3 (Total 20 Marks)**

- i. Name two components in JDBC API. (2 marks)
- ii. There are three types of JDBC Statements. Name two. (2 marks)
- iii. How does JDBC handle the data types of Java and database? (2 marks)
- iv. Consider the given scenario. (14 marks)

Assume you are using mysql database. Database name is "ABCcompany". It has four tables. Employee is one of the tables in that database. Employee table structure is given as follow:

Employee(eid:string, firstName:String, lastName:String, address:String, salary:float, telephone:int)

Write sample code segments for the following six steps.

- a. Load the JDBC Driver
- b. Establish the database connection
- c. Create a Statement Object
- d. Insert following record to Employee table  
"D134", "Suranga", "Kavirage", "no 12, Maradana, Colombo 10",  
"1240.00", 0711234567
- e. Display the values of firstName, telephone and salary
- f. Close the connection

**4 (Total 20 Marks)**

- i. What is an Enterprise Application? Give two features of them. (4 marks)
- ii. Write the most appropriate word for each of the following description. (2 marks)

- a. "WEB-INF directory has a file which contains configuration information about the web app in which it resides. It's an XML file with a standardized DTD".
  - b. "Java programming language class used to extend the capabilities of servers that host applications accessed via a request-response programming model".
- iii. What does Servlet API offer to store user data between requests? (3 marks)
- iv. Following code segment can be used to check the logging of user. This has two types of user accounts "admin" and "user". Password for user is "user@123" and password for admin is "admin@123". Html document for Logging.html page is given below

Logging.html
<pre> &lt;form action="logservlet" method="get"&gt;      Logging Here      User Name      &lt;input type="text" name="un"&gt;      Password      &lt;input type="password" name="pw"&gt;      &lt;input type="submit" value="Log"&gt;  &lt;/form&gt; </pre>

Using the information given above;

- a. Draw output of above Logging.html page. (2 marks)
- b. Fill in the blanks with most suitable codes. (9 marks)

```

public class logservlet extends .....(a)..... {
    protected void processRequest(.....(b)..... request,
    .....(c)..... response)
        throws ServletException, IOException {
        String Username=.....(d).....;
        String Password=.....(e).....;

```

```

        if ((.....(f).....)&& (.....(g).....("admin@123")))
        {
            response.sendRedirect("admin.jsp");    }
        else if ((.....(h),.....)&& (.....(i).....) {
            response.sendRedirect("userP.jsp");    }
        else {-----
        } } }

```

**5 (Total 20 Marks)**

- i. What are JSP elements? Give two examples. (4 marks)
- ii. Give two examples for Application Servers. (2 marks)
- iii. Write JSP code segment to display "SLIATE" 20 times in one line without keeping spaces. Use scriptlets only. (3 marks)
- iv. Write the output of following JSP page (3 marks)

**<h1>Sample Calculator</h1>**

**<hr>**

**<%! int c=100, f=5; %>**

**<%=c+f%> <br>**

**<%=c-f%> <br>**

**<%=c\*f%> <br>**

- v. What is WSDL? (4 marks)
- vi. Briefly discuss the benefits of Web Services (4 marks)

**6 (Total 20 Marks)**

- i. Enterprise Java Bean is primarily divided into three categories. What are they? (3 marks)
- ii. Suppose you want to develop a test calculator to add two numbers. To

Sample calculator

create this application you have decided to use Enterprise Java Bean.

a. What is the suitable enterprise bean type for this application? Give reasons for your answer.

(4 marks)

b. Sample code segment for the above bean class is given below. Fill in the blanks with suitable words.

(5 marks)

@.....(a).....

```
public class calBeana implements calBeanaLocal {
```

```
    public .....(b)..... add(int n1, int n2){
```

```
        int a= .....(c).....;
```

```
        return .....(d).....;
```

```
    }}
```

iv. Write short notes.

a. Web development framework.

b. MVC Architecture.

(8 marks)