



**SLIATE**

**SRI LANKA INSTITUTE OF ADVANCED TECHNOLOGICAL EDUCATION**

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

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**Higher National Diploma in Information Technology**

**Second Year, Second Semester Examination – 2015**

**IT4101- Multi-tiered Application Development**

Instructions for Candidates:  
**Answer Five (05) questions.**

No. of questions : 06  
No. of pages : 03  
Time : 03 hours

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**QUESTION 01**

- I. State three different computing paradigms currently known in the software industry. [03 Marks]
- II. Define “**Service Oriented Architecture**”. [03 Marks]
- III. List down the key characteristics of Service Oriented architecture. [04 Marks]
- IV. Differentiate between SOA and Web service. [04 Marks]
- V. “Service Oriented Computing encompasses revolutionary software solutions for the highly dynamic modern business world” Do you agree with this statement. Explain your answer. [06 Marks]

**QUESTION 02**

- I. What is Concurrency? [03 Marks]
- II. How can you implement a Thread in Java? Give sample Java codes to each. [08 Marks]
- III. Explain what is Thread Scheduling? [03 Marks]
- IV. What is meant by “Web Service”? Give the name of Java EE6 API (Application Programming Interface) which is used to implement each type of web services. [06 Marks]

### QUESTION 03

- I. What is JDBC? [02 Marks]
- II. What are the different driver types available in JDBC? [04 Marks]
- III. Consider the given scenario and write sample code segments for the following six steps.

Assume that you are using a MySQL/MsAccess database for the following operations. Database name is "Library" it has a table named "Book". Details of Book table as follows: Book (bid: string, bname:string, aid:String, no\_page: integer, price:float, isbn:integer). Assume this table already contains records.

- a. Load the JDBC Driver. [02 Marks]
- b. Establish the Database Connection. [02 Marks]
- c. Create a Statement Object. [02 Marks]
- d. Insert one data record to Book table. [02 Marks]
- e. Display values of bname, no\_page and price [04 Marks]
- f. Close the Connection [02 Marks]

### QUESTION 04

- I. What is "Servlet"? [03 Marks]
- II. Briefly explain the advantages of using JSP over Servlets in web application development? [04 Marks]
- III. What is the difference between GET and POST method in HTTP protocol? In which situation does we use doPOST () then? [04 Marks]
- IV. Define "Deployment Descriptor". [03 Marks]
- V. Assume you have provided following index.html file for collecting user name.

	<pre>&lt;form method="post" action="Hello"&gt; User Name &lt;input type="text" name="txtUser"&gt;&lt;br&gt; &lt;input type="submit" value="submit"&gt; &lt;br&gt; &lt;/form&gt;</pre>
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Write the code for java Servlet which collect the request and display user name.

[06 Marks]

### QUESTION 05

- I. What are the major the differences between XML and HTML. [02 Marks]
- II. Why do we use a DTD in XML? [02 Marks]
- III. Briefly explain the term “XML Parser”. Give 2 examples for Java XML parsers. [04 Marks]
- IV. What do you mean by Valid XML Document [02 Marks]
- V.
- a. Write XML code that describes the given scenario.  
The root element is Vehicles. The VEHICLE element must contain one each of items MODEL, REGNO, COLOR, and BRAND in order. The VEHICLE element may contain an attribute called "transmissiontype" which may have a value of "Auto" or "Manual". The elements MODEL, REGNO, COLOR, and BRAND all contain PCDATA which is parsed character data.  
Note: Vehicle may have multiple colors [05 Marks]
- b. Design the DTD file for the above XML document. [05 Marks]

### QUESTION 06

- I. Briefly explain the following terms
- A. WSDL
- B. SOAP [06 marks]
- II. List the primary aspects of security addressed by distributed computing. [05 Marks]
- III. Briefly describe the following J2EE security related terms
- a. User
- b. Group
- c. Role [09 marks]

Ready to print

Handwritten signature or initials.

E.M.D.S.K. Ekanayake