

Enterprise Architecture - model Answer.

1			
	i.	<p>Name four major computing paradigms that have dominated computer science education and software development.</p> <p>Imperative computing</p> <p>Procedural computing</p> <p>Object-Oriented Computing (OOC)</p> <p>Service-Oriented Computing (SOC)</p> <p>01 mark for each</p>	(1*4 ->4 marks)
	ii.	<p>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?</p> <p>Object Oriented: Object: stateful</p> <p>Service Oriented: Service: stateless</p> <p>01 marks for each</p>	(2 marks)
	iii.	Compare and contrast Object Oriented Programming and Service	

	Oriented Programming in terms of code shearing and reuse. (4 marks) <table><tr><td>Code sharing and reuse</td><td>Code reuse through inheritance of class members and through library functions. Library functions have to be imported at compilation time and are platform dependent.</td><td>Code reuse at the service level. Services have standard interfaces and are published on Internet repository. They are platform-independent and can be searched and remotely accessed. Service brokerage enables systematic sharing of services.</td></tr></table> 02 marks for each			Code sharing and reuse	Code reuse through inheritance of class members and through library functions. Library functions have to be imported at compilation time and are platform dependent.	Code reuse at the service level. Services have standard interfaces and are published on Internet repository. They are platform-independent and can be searched and remotely accessed. Service brokerage enables systematic sharing of services.	
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iv.	Briefly explain levels of the 3-tiered architecture <table><tr><td><ul style="list-style-type: none">▪ Client tier - client program makes requests to middle tier▪ Middle tier - handles client requests by processing application data (business logic – business tier)▪ Data tier - persistent data store (database / legacy system / etc.)</td></tr></table> Mention 3 name= 03 marks Explain each 01x 3= 03 marks		<ul style="list-style-type: none">▪ Client tier - client program makes requests to middle tier▪ Middle tier - handles client requests by processing application data (business logic – business tier)▪ Data tier - persistent data store (database / legacy system / etc.)	(6 marks)			
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v.	“There are differences between J2EE components and Standard Java classes”. Do you agree with this statement? Justify your answer. Agree 01 mark <ul style="list-style-type: none">• J2EE components are assembled into a J2EE applications• Verified to be well formed.		(4 marks)				

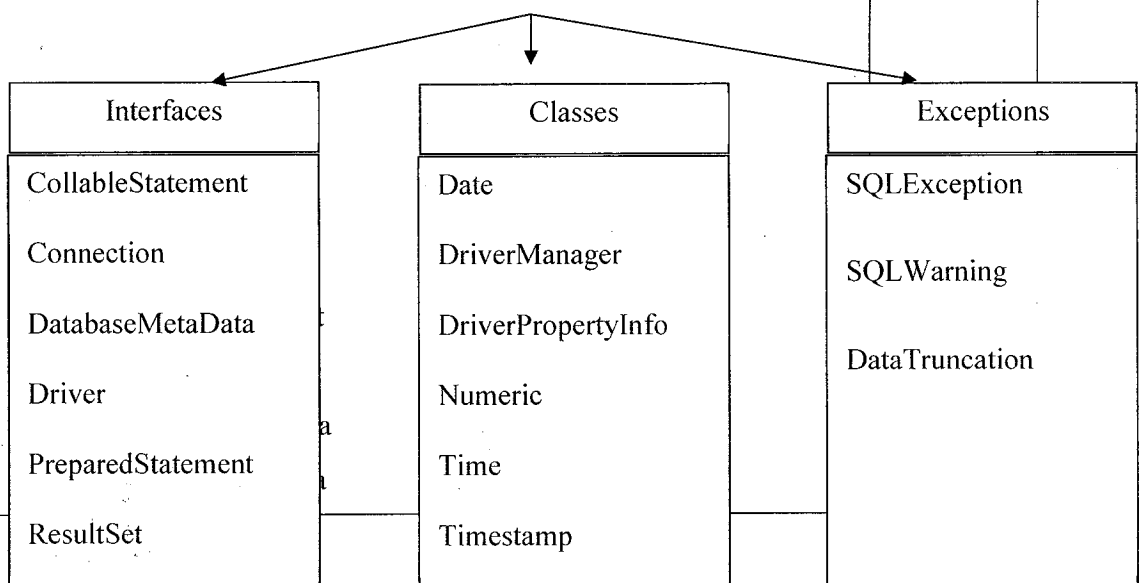
		<ul style="list-style-type: none"> • Should be in compliance with the Java EE specification. • Are deployed to production, where they are run and managed by the J2EE server. <p>Any three reasons from above or relevant, for justification 03 marks</p>	
			(20 Marks)
2			
	i.	<p>Name two ways of performing multi-tasking</p> <p>Process-based</p> <p>Thread-based 01 mark for each</p>	(2 marks)
	ii.	<p>Write functionality of following methods</p> <p>Thread.sleep() method puts the current running thread to pause execution</p> <p>Thread.yield() method allows other threads a chance to execute</p>	(2 marks)
	iii.	<p>Compare HTML and XML</p> <p>Used to describe content rather than presentation</p> <p>New tags may be defined at will by the author of the document (extensible)</p> <p>No semantics behind tags. For instance, HTML's <table>...</table> means: render contents as a table; in XML: doesn't mean anything special.</p>	(2marks)

	<p>Intolerant to bugs; Browsers will render buggy HTML pages but XML processors will reject ill-formed XML documents.</p> <p>Any 2 reasons 02 marks</p>	
iv.	<p>Write characteristics of well-formed xml file.</p> <p>A "Well Formed" XML document has correct XML syntax.</p> <p>XML documents must have a root element</p> <p>XML elements must have a closing tag</p> <p>XML tags are case sensitive</p> <p>XML elements must be properly nested</p> <p>XML attribute values must be quoted</p> <p>Any one characteristic 1 mark x 4 =04marks</p>	(4 marks)
v.	<p>Write the DTD for the xml file given below .</p> <pre> <?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"> </pre>	(6 marks)

	<pre> <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 > <!DOCTYPE Library [<!ELEMENT Library (book*)> <!ELEMENT book (title, author+,author_email+,author_url+)> <!ATTLIST book isbn CDATA #REQUIRED edition CDATA #REQUIRED> <!ELEMENT title (#PCDATA)> <!ELEMENT author (#PCDATA)> <!ELEMENT author_email (#PCDATA)> <!ELEMENT book_url EMPTY> </pre>	
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	vi.	Draw the Tree View of the above XML document	(2 marks)
			(20 marks)
3			

	i.	Name two component in JDBC API interface.	02 marks
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		<ul style="list-style-type: none"> CallableStatement 	
	ii.	<p>There are three types of JDBC Statements. Name two.</p> <p>any two of</p> <ul style="list-style-type: none"> Statement PreparedStatement CallableStatement 	02 marks
	iii.	<p>How does JDBC handle the data types of Java and database?</p> <p>The JDBC driver converts the Java data type to the appropriate JDBC type before sending it to the database. It uses a default mapping for most data types. For example, a Java int is converted to an SQL INTEGER.</p>	02 marks
	iv.	<p>Consider the given scenario.</p> <p>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:</p> <p>Employee(eid:string, firstName:String, lastName:String, address:String, salary:float, telephone:int)</p> <p>Write sample code segments for the following six steps.</p> <p>a. Load the JDBC Driver02 marks</p> <p>b. Establish the database connection..... 02 marks</p> <p>c. Create a Statement Object 02 marks</p>	14 marks

	<p>d. Insert following recode to Employee table 02 marks</p> <p>“D134”, “Suranga”, “Kavirage”, “no12,Maradana, Colombo10”, “1240.00”,0711234567</p> <p>e. Display the values of firstName, telephone and salary 04 marks</p> <p>f. Close the connection 02 marks</p> <p>a. Class.forName("com.mysql.jdbc.Driver");</p> <p>b. static String url = "jdbc:mysql://localhost/ ABCcompany "; //for mysql</p> <p>Connection con = DriverManager.getConnection(url, "root", "password");</p> <p>c. Statement stmt = con.createStatement();</p> <p>d. String InsertString= "Insert into Employee values“D134”, “Suranga”, “Kavirage”, “no12,Maradana, Colombo10”, “1240.00”,0711234567)”; stmt.executeUpdate(InsertString);</p> <p>e.</p> <p>ResultSet uprs = stmt.executeQuery("SELECT firstName, telephone, salary FROM Employee ");</p>	
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		<pre> while (uprs.next()) { String firstName = uprs.getString("firstName "); int telephone = uprs.getInt("telephone "); float salary = uprs.getFloat("salary "); System.out.print(firstName + " " + telephone + " " + salary); } f. stmt.close(); con.close(); </pre>	
			(20 marks)
4			
	i.	<p>What is an Enterprise Application? Give two features of them. (4 marks)</p> <p>Enterprise Application 2 Marks</p> <p>Any two. 01 marks x 2= 2marks</p>	(4 marks)
	ii.	Write the most appropriate word for each of the following description.	(2 marks)

	<p>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.</p> <p>web.xml file or deployment descriptor</p> <p>Java programming language class used to extend the capabilities of servers that host applications accessed via a request-response programming model.</p> <p>servlet</p> <p>02 marks</p>			
iii.	What does Servlet API offer to store user data between requests?	(3 marks)		
	<p>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</p> <table><tr><td>Logging.html</td></tr><tr><td><pre><form action="logservlet" method="get"> Logging Here User Name <input type="text" name="un"></pre></td></tr></table>	Logging.html	<pre><form action="logservlet" method="get"> Logging Here User Name <input type="text" name="un"></pre>	
Logging.html				
<pre><form action="logservlet" method="get"> Logging Here User Name <input type="text" name="un"></pre>				

		Password <input type="password" name="pw"> <input type="submit" value="Log"> </form>	
	iv.	Using the information given above; Draw output of above Logging.html page.	(2 marks)
	v.	Fill the blacks with most suitable codes.	(9 marks)
		<pre> 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 {----- ----- } } } </pre>	

		<pre> public class logservlet extends HttpServlet { protected void processRequest(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException { String Username=request.getParameter("un"); String Password=request.getParameter("pw"); if(((Username.equals("admin"))&& (Password.equals("admin@123")))) { response.sendRedirect("admin.jsp"); } else if ((Username.equals("user"))&& (Password.equals("user@123")))) { response.sendRedirect("userP.jsp"); } else {----- ----- } } } </pre>	
			(20 Marks)
5			
	i.	What are JSP elements? Give two examples.	(2 marks)
	ii.	<p>Give two examples for Application Servers.</p> <p>Glassfish, jboss, tomcat, any relevant answer</p>	(2 marks)
	iii.	Write JSP code segment to display "SLIATE" 20 times in one line without keeping spaces. Use scriptlets only. pacing.	(2 marks)

	<pre> <% for (int i=0 ;i<20 ; i++) { out.print("SLIATE"); } %> </pre> <p>For loop 01 mark, Out.print -- 01 mark</p>	
iii.	<p>Write output of following JSP page</p> <pre> <h1>Sample Calculator</h1> <hr> <%! int c=100, f=5; %> <%=c+f%>
 <%=c-f%>
 <%=c*f%>
 </pre> <p>Sample Calculator</p> <hr/> <p>105 95 500</p> <p>For each one mark for each calculation out put.</p>	(3 marks)
iv.	<p>Write JSP program to accept the input parameters and display full name of employee, who enter his first and last name in following html page.</p> <pre> <form action="displayFullName.jsp"> First Name: <input type="text" name="fn">
 Last Name: <input type="text" name="ln">
 <input type="submit"> </form> </pre> <pre> <% String fn = request.getParameter("fn"); String ln = request.getParameter("ln"); </pre> <p>..... 01 marks 01 marks</p>	(4 marks)

		String fullname= fn + " "+ ln; out.print(fullname); %> 01 marks 01 mark	
	vi.	What is WSDL? WSDL stands for Web Services Description Language WSDL is as XML document WSDL is used to describe Web services It specifies the location of the service and the operations (or methods) the service exposes WSDL is also used to locate Web services	(4 marks)	
	vii.	Briefly discuss the benefits of Web Services The Web services architecture represented by SOAP, UDDI, and WSDL is a direct descendant of conventional middleware platforms They can be seen as the most basic extensions that are necessary to allow conventional synchronous (RPC=based) middleware to achieve interoperability Platform independence (Hardware, OS) Programming language neutrality Portability across Vendor/Middleware tools State any 04 reasons: 1 mark x 4 =04 marks	(4 marks)	
			(20 marks)	
6				

i.	Enterprise Java Bean is primarily divided into three categories. What are they? Session Bean Entity Bean Message Driven Bean	(3 marks)
ii	Suppose you want to develop a test calculator to add two numbers. To create this application you have decided to use Enterprise Java Bean.	
ii.	What is the suitable enterprise bean type for this application? Give reasons for your answer. Stateless session bean – 2 Marks Any correct Reason 2 Marks	(4 marks)
iii.	Following code segment can be used for bean class. Fill the blanks @.....(a)..... public class calBeana implements calBeanaLocal { public(b)..... add(int n1, int n2){ int a=(c).....; return(d).....; }} @Stateless ← 1 mark public class calBeana implements calBeanaLocal { public int add(int n1, int n2){ ← 1 mark int a= n1+n2; ← 2 marks return a; ← 1 mark }} }}	(5 marks)

	iv.	Write short notes.	(8 marks)
		a. Web development framework	
		b. MVC Architecture	
		04 marks for each	

Marking Scheme

Enterprise Architecture

HNDIT 2 Year

2 Semester 2016

No of question 06.

Answer any 5

Duration 03 hours