

UNIVERSITY OF BOLTON – RAS AL KHAIMAH

**SCHOOL OF BUSINESS & CREATIVE
TECHNOLOGIES**

COMPUTING PATHWAY

SEMESTER 2 EXAMINATION 2010/11

CLIENT SERVER SOLUTIONS

MODULE NO: CST3005

Date: Thursday 2nd June 2011

Time: 13:00 – 15:00

INSTRUCTIONS TO CANDIDATES:

There are FIVE questions, TWO in Section A and THREE in Section B

Answer TWO questions in Section A and ANY TWO from Section B.

Marks for parts of questions are shown in brackets.

Section A

A1.

a) Describe in detail the manner in which compiler generates machine code that interacts with libraries and the operating system in a single computer, providing an explanation of the purpose of the libraries.
[10marks]

b) Illustrate the above concept with a diagram that indicates how the different pieces of software referred to in the above sentence can be considered as communicating layers executing within RAM in a computer.
[4marks]

c) Draw a diagram to explain the interaction of multiple layers of software within two tiers of hardware for EACH of the following scenarios. Each diagram should be accompanied by a brief list of actions that each layer fulfills as the system executes.

I. A web page that contains some JavaScript code.
[6marks]

II. A VB program on a client using Winsock to implement UDP messages with a VB program on a server.
[6marks]

d) Describe briefly what is meant by 'thin client' technology.
[4marks]

A2.

a) Explain in detail the event-driven paradigm found in Visual Basic; your answer should highlight the programmatic control of sequences of actions that the user will undertake.
[11marks]

b) Provide example an of how the Use/Change analysis can be used to document the effect of user actions in a windows environment.
[11marks]

Question A2 continues over the page....

Question A2 continued....

- c) Explain in detail how to implement a connectionless communication between two computers which are running Windows operating system. Ensure that you refer to the Bind method in your answer.

[8marks]

Section B

B3.

- a) Draw a diagram that illustrates what software layers exist within a 3-tier solution that utilizes Tuxedo, and provide a brief description of the structure of the data that passes between the hardware tiers.

[6marks]

- b) What is meant by the term ACID when describing a transaction processing monitor (TPM) such as CICS or Tuxedo.

[6marks]

- c) How does an environment such as Tuxedo support the application developer when there is a need to provide fault management and security in an application.

[4marks]

- d) Assess the significance of load-balancing, as found in Tuxedo, when an application has to support an unpredictable number of users.

[4marks]

PLEASE TURN THE PAGE....

B4.

- a) Describe in detail how a DTD can be used to define the structure of an XML document, using the sample provided to illustrate your answer.

```
<!Element PurchaseOrder(Heading, Details)>  
<!Element Heading (SupplierName, PODate)>  
<!Element Details (Detail+)>  
<!Element Detail (CatalogueLine) | (Special)>  
<!Element CatalogueLine (Quantity,PartRef,Description)>  
<!Element Special (Quantity, Description)>
```

[8marks]

- b) Examine the following XML document and identify three different reasons why it is not compliant with the above definition.

```
<PurchaseOrder><Heading><SupplierName>Smith</SupplierName>  
<PODate>2009-05-23</PODate><ShipDate>2009-05-23</ShipDate></Heading>  
<Details><Detail><CatalogueLine><Quantity>2<Quantity>  
<PartRef> ZX31</PartRef> <Description>Spanner</ Description>  
</CatalogueLine></Detail>  
<Detail><Special><Quantity>3</Quantity><Description>Widget</ Description>  
<Detail><CatalogueLine><Quantity>5<PartRef> ZX47</PartRef>  
<Description>Hammer</ Description></CatalogueLine> </Detail></Special>  
</Detail>< /PurchaseOrder>
```

[6marks]

- c) Contrast the functionality of a workflow application with that of a single program presenting a user with a multiple screens for data input.

[6marks]

B5.

- a) Describe the use of Service Oriented Architecture (SOA) to provide alternate interfaces for 'legacy applications' with new software developments.

[10marks]

- b) Describe the technologies that are utilized within the Ajax architecture and highlight problems that exist within the approach.

[10marks]

END OF QUESTIONS