

**UNIVERSITY OF BOLTON**  
**SCHOOL OF GAMES COMPUTING AND**  
**CREATIVE TECHNOLOGIES**  
**COMPUTING PATHWAY**  
**SEMESTER 2 EXAMINATION 2008/2009**  
**CLIENT SERVER SOLUTIONS**  
**MODULE NO: CST3005**

Date: Friday 29<sup>th</sup> May 2009

Time: 10.00 am – 2 hours

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**INSTRUCTIONS TO CANDIDATES:**

There are FIVE questions.

Answer Questions 1 and 2 in Section A

and

two questions from three in Section B.

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## **SECTION A**

### **QUESTION 1**

a) The output from a compiler (.OBJ) can be linked with code from libraries to produce an executable image(.EXE). Draw a diagram that indicates how the operating system and the executable images interact and explain the function of the code in the libraries.

6 marks

b) Draw a diagram that indicates how layers of software can execute in two tiers of hardware if the server is ONLY being used to execute a database engine such as Oracle or SQL server. Explain what data is transmitted between each tier of hardware.

8 marks

c) Draw a diagram that indicates how layers of software can execute in two tiers of hardware where the client is using a Web Browser and explain what protocols are used to control the passage of data over the network.

7 marks

d) Explain the difference between a block-mode Visual Display Unit (VDU) and a character based VDU. Comment on how the above difference influences the computer programming language which is being used to allow a user to interact with a program.

9 marks

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## **QUESTION 2**

The following questions all relate to Visual Basic

a) Explain what is meant by the event-driven paradigm and compare the style of solution provided for user interaction with that found in third generation procedural languages such as C or Pascal.

10 marks

b) Provide an example of how the Use/Change analysis can be used to document the effect of user actions on the client interface

9 marks

c) Explain in detail why the Bind method for the Winsock component is used.

5 marks

d) Differentiate between TCP and UDP communications when using the Winsock component.

6 marks

**END OF SECTION A**

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## **SECTION B**

### **QUESTION 3**

What are the features that are built into the transaction processing monitor (TPM) Tuxedo that are beneficial to a software developer.

9 marks

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

5 marks

What is meant by the ACID test when used to describe a transaction processing environment.

6 marks

### **QUESTION 4**

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

8 marks

b) Describe the functionality of a workflow application and explain what software tools led to its development.

8 marks

c) Analyse the reasons for a workflow solution to be more commonly found in large organisations rather than small companies.

4 marks

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**QUESTION 5**

a) Compare the process of software development within Biztalk with the approach taken in standard third generation programming languages (eg C, Pascal, C++ ), illustrating your answer with diagrams that show the interface provided, by Biztalk Mapper and Orchestrator.

12 marks

b) Explain the significance of BPEL4WS as a development environment and assess the significance of the companies who have accepted this new standard.

8 marks

**END OF SECTION B**

**END OF QUESTIONS**