UNIVERSITY OF COLOMBO, SRI LANKA

UNIVERSITY OF COLOMBO SCHOOL OF COMPUTING
(Successor to the Institute of Computer Technology (ICT), University of Colombo)

DEGREE OF BACHELOR OF INFORMATION TECHNOLOGY (EXTERNAL)
Academic Year 2003/2004 – 2ⁿᵈ Year Examination – Semester 4

IT4201: Rapid Application Development
PART 2 – Structured Question Paper

24ᵗʰ July, 2004
(ONE AND HALF HOURS)

To be completed by the candidate

BIT Examination Index No: _____

Important Instructions:

- The duration of the paper is $1\frac{1}{2}$ **(one and half) hours**.

- The medium of instruction and questions is English.
- This paper has **4 questions** and **12 pages**.
- **Answer question 1 and any 2 of the other questions only**.
- All questions will carry equal marks.
- **Write your answers** in English using the space provided **in this question paper**.
- Do not tear off any part of this answer book.
- Under no circumstances may this book, used or unused, be removed from the Examination Hall by a candidate.
- Note that questions appear on both sides of the paper.
  If a page is not printed, please inform the supervisor immediately.

Questions Answered
Indicate by a cross (×), (e.g. | × |) the numbers of the questions answered.

To be completed by the candidate by marking a cross (×).	Question numbers				
	1	2	3	4	
To be completed by the examiners:					

Based on the following case study answer question 1.

1)

Video library
Case Study

Atlantic Video Library specializes in obscure videos. It lends videos only to members of the video society, which is part of an exclusive and very expensive Gentlemen's club. Any member of the club automatically becomes a member of the video society. New members are admitted only on 1st January each year.

The library is set up along conventional lines, but there are no restrictions on the number of videos members may borrow at any one time. Videos have to be returned only if required by another member. Most of the active users of the library regularly change their videos. Two or three copies of popular titles are available.

In order to borrow a video, a member selects it, takes it to the issue desk and gives the video and his club membership card, to the librarian. The librarian takes the video ID card from the video sleeve and adds the membership number to the card. The librarian then places the card into the loan file and the member leaves with his video and his club membership card. This same procedure is followed in respect of each video borrowed.

When a member returns a video, he hands over the video to the librarian. The librarian finds the video card in the loans file and places the card in the video sleeve before returning the video to the library shelves not forgetting to remove the member number from the video card.

To reserve a video which is already on loan, the member gives the details of the video and the membership number to the librarian. The librarian finds the relevant video card in the loans file, and adds the member's number to the reservation column on the video card. The librarian also makes a note of the member who has the video on loan and completes a return request card addressed to the member. The address is taken from the library copy of the club membership book. When the reserved video is returned, the librarian puts the video under the counter and completes a reservation ready card addressed to the member who requested the reservation. The member requiring the video can then pick the video up from the library and have it issued in the usual manner. Members make many inquiries from the librarian. Typical questions include- '"Is the video titled 'abc' on loan?", "Which videos did actor 'xyz' appear in? ", "Have you got any videos on subject 'def'?" and so forth. The librarian is able to answer these questions by inspecting the loan file, the actor index, the subject index and the title index.

In addition to the above duties, the librarian receives new videos from the social committee of the club. On receipt of a new video, the librarian has to make a video card for insertion in the video sleeve and then insert relevant entries for the indexes. The librarian is also responsible for amending the library copy of the membership book with changes of the addresses and at the end of the year , collecting the new membership book from the club secretary.

Note : The selection, ordering and payments for the videos are not considered relevant within the terms of the case study.

1) (a) Identify classes for case study and create instances for any four of those classes.

(10% Marks)

ANSWER IN THIS BOX

(b) Describe "Initialize event procedure" and "Terminate event procedure" in Visual Basic 6.

(25% Marks)

ANSWER IN THIS BOX

(c) MS SQL server ver. 7 had been used as the Relational Database Management System for the above MIS system. The developer of the system has used ADO s for connecting the Front End with the Back End. He has written a function for opening the database connection called OpenDB. Complete the following code. Use the variables myCnn for connection and myConnectionString as String variable for the connection string.

Database= Video;Server= Mugalan; uid =cats; pwd = mycat1

Public Function OpenDb(…**(1)**….myCnn as Adodb.Connection, .…**(2)**… .myConnectionString as String) as Boolean

 Set myCnn = new …………**(3)**….……..
 MyConnectionString = "……….**(4)** …..…."

 myCnn.open myConnectionString

End Function

Describe byref and byval.

(30% Marks)

ANSWER IN THIS BOX
(1)
(2)
(3)
(4)

(d) The developers of the Video library MIS have created several stored procedures on the server to index obscure videos. How would they invoke the stored procedures to run on the server?

(15% Marks)

(e) (i) What is a parameterized query?
   (ii) Modify the following SQL statement to make it a parameterized query.
     "insert into myTable (indexNo,Lastname) values ('c20395','De Silva')

(20% Marks)

2) (a) What does Option *Explicit* do? Identify the place to insert option *Explicit*.

(10% Marks)

ANSWER IN THIS BOX

(b) Describe property procedures: *let*, *get* and *set*.

(10% Marks)

ANSWER IN THIS BOX

(c) Briefly explain what an object is. List three Objects in Visual Basic 6.

(20% Marks)

ANSWER IN THIS BOX

(d) Where do objects come from and how would one create an object? Write lines of code to show how to create an object.

(20% Marks)

ANSWER IN THIS BOX

(e) How is Polymorphism described and how is it implemented in Visual Basic 6?

(20% Marks)

ANSWER IN THIS BOX

(f) What does "*implements*" keyword do? Describe what interfaces are.

(20% Marks)

ANSWER IN THIS BOX

3) Arrays can be used to store information about indexed items. Mr. M. Lokusuriya maintains a small car park, which can accommodate 50 vehicles. Each parking block is numbered (1 to 50) and he issues a ticket to the driver. The block ID is printed on the ticket. Mr. Lokusuriya writes down the block ID (ticket no.) and the entry time in a register in order to calculate the fee, which is calculated on an hourly basis.

(a) State Two(2) possible datatypes which one can use to store the entry time.

(10% Marks)

ANSWER IN THIS BOX

(b) Explain how one can use a simple array, giving a sample VB coding, to assist Mr. M. Lokusuriya's work.

(25% Marks)

ANSWER IN THIS BOX

(c) Mr Lokusuriya checks all the tickets every morning and starts with a new page of the register. A similar method can be adopted on the computer system. Write a procedure to initialize all the information.

You may start your procedure as
Private Sub CreateNewTicketList(ByRef Vpark as Variant)

(25% Marks)

ANSWER IN THIS BOX

(d) Write a simple function to return the available parking block ID (ticket no.). The function must return that value 0 if all blocks are full.

(30% Marks)

ANSWER IN THIS BOX

(e) If Mr. Lukusuriya needs to reserve the first ten parking blocks for the staff of
     "Royal Company (PVT) Ltd. what changes must be made to the previous answer?

(10% Marks)

ANSWER IN THIS BOX

4)   (a)   Write property procedures in Visual Basic 6 and state the differences between sub procedures and
           functions.

(20% Marks)

ANSWER IN THIS BOX

(b)   Having gone through the following lines of code, describe the difference between (1) and (2):

      Load frmForm1 -----(1)

      frmForm1.show ---------(2)

(20% Marks)

ANSWER IN THIS BOX

(c) Describe "*Late binding*" and "*Early binding*".

(30% Marks)

ANSWER IN THIS BOX

(d) What does COM/DCOM stand for? Describe what an ActiveX is.

(30% Marks)

ANSWER IN THIS BOX

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