FINAL
Examination Paper

(COVER PAGE)

Session : May 2006

Programme : Diploma in Information Technology

Course : CSC 122: Visual Programming

Date of Examination : 11 August 2006

Time : 8.00 a.m – 11.00 a.m Reading Time : Nil

Duration : 3 hours

Special Instructions :

This paper consists of SIX (6) questions. Answer any FOUR (4) questions in the answer booklet provided. All questions carry equal marks.

Materials permitted :

Nil

Materials provided :

Nil

Examiner(s) : Roshayu, Dennis Wong Li Jou and Nor Rahayu.

Moderator :

This paper consists of 9 printed pages, including the cover page.
This paper consists of SIX (6) questions. Answer any FOUR (4) questions in the answer booklet provided. All questions carry equal marks.

**Question 1**

(a) Explain **THREE (3)** scopes of variables, by using examples. (9 marks)

(b) Write down **FIVE (5)** rules for naming variables properly. (5 marks)

(c) Explain the term string concatenation using appropriate examples. (4 marks)

(d) Write a program to convert Customary System length in miles, yards, and feet to a Metric System length in kilometers, meters, and centimeters. After the number of miles, yards, and feet are read from the input boxes, the length should be converted entirely to inches and then to meters, centimeters and kilometers. A sample run is shown in Figure 1. Use Format functions to display the values rounded to 3 decimal places (for meters and centimeters). The Int function should be used to break the total number of meters into a whole number of kilometers. Some of the needed formulas are as follows:

Inches = (63360 * miles) + (36 * yards) + (12 * feet)  
Meters = Inches / 39.37  

(7 marks)
Question 2

(a) An automobile repair shop charges customer RM35 per hour for labor. Also, costs for parts and supplies are subject to a 5% sales tax. Write a program to print out a simplified bill. The customer’s name, the number of hours of labor, and the cost of parts and supplies should be entered into the program via text boxes. When a command button is clicked, the customer’s name (intended) and the three costs should be displayed in a table, as shown in Figure 2. Use Format functions, String Functions and Tab() functions for proper output.

(b) What does the following event procedure do? What is the output?

Private Sub cmdDisplay_Click()
    Dim i As Integer
    i = 0
    Do While i <= 5
        picOutput.Print (i Mod 2)
        i = i + 1
    Loop
End Sub

(10 marks)

(5 marks)
(c) Write a program to find the sum of the odd numbers from 1 to 20. The program should check the numbers is either odd or even numbers. Display the result in a TextBox as shown in Figure Q3.

![Figure Q3]  

(d) Write a single statement or a set of statements to accomplish each of the following:

(i) Explicitly declare the variables c, v, and n to be of type Integer.  
    (2 marks)

(ii) Decrement the variable count by 1, then subtract it from the variable total, and assign the result to the variable result. Assume all variables to be of type integer.  
    (1 mark)

(iii) Calculate the remainder after the variable total is divided by the variable counter and assign the result to the variable remainder. Assume the variables to be of type Integer.  
    (1 mark)
Question 3

(a) What does the following code do? What is the output?

```plaintext
sum = 20
z = 5
Do While (z >= 0)
    sum = sum + z
    Print sum;
    z = z - 1
Loop
```

(5 marks)

(b) Write a program that requests a letter, converts it to uppercase, and gives its first position in the sentence “THE QUICK BROWN FOX JUMPS OVER A LAZY DOG.” For example in Figure 4, if the user responds by typing b into the text box, then the message “B first occurs in position 11” is displayed.

(6 marks)

![String Manipulation](image)

Figure Q4

(c) Distinguish between arguments and parameters with appropriate examples. (4 marks)

(d) Write a VB program to get one input as a floating-point number and one input as an integer. Pass the two inputs as parameters to a function. The function should multiply the floating-point number by itself the number of times indicated by the integer. The function should return the final product back to the main function. The program should display the returned value by the function as an output.

(10 marks)
Question 4

(a) (i) Write a program to create the sequential file COWBOY.TXT containing the information in a table given below. (5 marks)

<table>
<thead>
<tr>
<th>Name of the cowboy</th>
<th>Price ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colt Peacemaker</td>
<td>12.20</td>
</tr>
<tr>
<td>Holster</td>
<td>2.00</td>
</tr>
<tr>
<td>Levi Strauss Jeans</td>
<td>1.35</td>
</tr>
<tr>
<td>Stetson</td>
<td>10.00</td>
</tr>
</tbody>
</table>

(ii) Update the price for data Levi Strauss Jeans to $5.35. The file COWBOY.TXT should then be copied to a temporary file. The update record for this cowboy should then be written to the temporary file, TEMP_COWBOY.TXT, followed by all remaining records in COWBOY.TXT. Finally, the original COWBOY.TXT file should be erased and the temporary file renamed to COWBOY.TXT. (5 marks)

(b) A TV set is purchased with a loan of $563 to be paid off with five monthly payments of $116. The interest rate is 1 percent per month. Write a VB program to calculate the balance of the loan at the end of each month using a for ... next loop. Display the output in a Picturebox as shown in Figure Q6. (5 marks)
(c) Explain the following terms in VB:
(i) vbAbortRetryIgnore (2 marks)
(ii) vbExclamation (2 marks)
(iii) Now (1 marks)

(d) A copying center charges RM0.05 per copy for the first 100 copies and RM0.03 per copy for each additional copy. Using Figure 7 as a guide, write a program that requests the number of copies as input and displays the total cost using If..Then..Else statements. (5 marks)

Figure Q7
Question 5

(a) Write a program to get ten numbers from user and store into a one-dimensional array. Calculate the value of c where:
\[
\begin{align*}
    a &= \text{sum of all the even values in the array} \\
    b &= \text{sum of all the odd values in the array} \\
    c &= a^2 + b^3
\end{align*}
\] (7 marks)

(b) Write a program that requests input to a two-dimensional array of integers with 2 rows and 4 columns called \textbf{Amount}. Find and display the sum of the row elements (use an array called \textbf{RowTotal}) and sum of the column elements (use an array called \textbf{ColumnTotal}). You are required to use \textbf{For..Next} loop to perform the calculation. (10 marks)

<table>
<thead>
<tr>
<th>Amount</th>
<th>RowTotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4</td>
<td>10</td>
</tr>
<tr>
<td>5 6 7 8</td>
<td>26</td>
</tr>
<tr>
<td>6 8 10 12</td>
<td></td>
</tr>
</tbody>
</table>

ColumnTotal

(c) Differentiate sub procedure from function procedure. In what occasions could we use these two procedures? (4 marks)

(d) There are \textbf{TWO (2)} ways of passing an argument in Visual Basic. Briefly explain each of them with the help of examples. (4 marks)
Question 6

(a) Find the error(s) in the following program segment. If an error can be corrected, explain how the error can be corrected.

Private Procedure HugeJ(p As Currency) As Variant
    Dim p As Single
    p = p * 10
    Print "p is " & p
    HugeJ = p
End Procedure

(b) Write a procedure that takes an Integer value and returns the number with its digits reversed. For example, given the number 8456, the procedure should return 6548.

(c) Write a function called middle that returns the middle value of three integers that are passed as parameters.

(d) When do the following events take place?
   (i) Change()
   (ii) Keypress()
   (iii) Mousemove
   (iv) Lostfocus

(e) What is the difference between a variable and an array? How should we declare them?